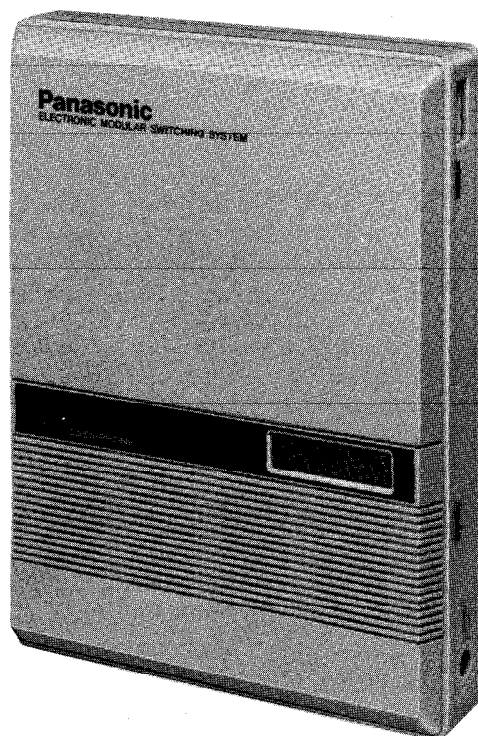


Service Manual

EASA-PHONE

ELECTRONIC MODULAR SWITCHING SYSTEM

KX-T61610-1



SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

NAME AND LOCATION\НАИМЕНОВАНИЕ И РАСПОЛОЖЕНИЕ

CONNECTION\СОЕДИНЕНИЯ

PROGRAMMING\ПРОГРАММИРОВАНИЕ

IC I/O DATA\ИНФОРМАЦИЯ О МИКРОСХЕМАХ ВВОДА/ВЫВОДА

BLOCK DIAGRAM\БЛОК - СХЕМА

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES\ЦОКОЛЕВКА ИНТЕГРАЛЬНЫХ СХЕМ,
ТРАНЗИСТОРОВ И ДИОДОВ

SCHEMATIC DIAGRAM\ПРИНЦИПИАЛЬНЫЕ СХЕМЫ

WIRING CONNECTION DIAGRAM\СХЕМА СОЕДИНЕНИЙ

IC BLOCK DIAGRAM\БЛОК - СХЕМЫ ИНТЕГРАЛЬНЫХ СХЕМ

EXTENSION CORD CONNECTING METHOD\ПОДСОЕДИНЕНИЕ СЕРВИСНЫХ КАБЕЛЕЙ

ADJUSTMENTS\РЕГУЛИРОВКИ

EXPLODED VIEW\СБОРОЧНЫЙ ЧЕРТЕЖ

ACCESSORIES AND PACKING MATERIALS\ПРИНАДЛЕЖНОСТИ И УПАКОВОЧНЫЕ МАТЕРИАЛЫ

REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ

Panasonic

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Carolina, Puerto Rico 00630

SPECIFICATIONS

General Description

1. Capacity	Outsides (CO) 6 Stations 16	
2. Control Method	Stored Program CPU: 8 bits CPU, 4 bits CPU Control ROM: 64 KB, Control RAM: 16 KB	
3. Switching	Space Division CMOS Crosspoint Switch	
4. Power Supplies	Primary AC 120 V 60 Hz Secondary Station Supply Volt: -24 V, Circuit Volt: +5 V, ±13.4 V, -24 V, -18 V Power Failure •6 outsiders assigned to stations (1 through 6) ...power failure transfer •System operation for 4 hours by optional Backup Adaptor.	
5. Dialing	Outward Dial Pulse 10PPS Tone Dial Internal Dial Pulse 10PPS, 20PPS Tone Dial Mode Conversion DP-DTMF, DTMF-DP	
6. Intercom paths	4	
7. Connector	Outsides (CO) Modular Jack (RJ-11) Station Modular Jack Paging Output Pin Jack (RCA JACK) External Music Input two-conductors Jack (MINI JACK 1/8 inch diameter)	
8. EXT Connection	Cable 1 pair wire (Standard Telephone) 2 pair wire (KX-T61630/KX-T61620/KX-T61650/ KX-T30830/KX-T30820/KX-T30850)	
9. SMDR	Interface RS-232C (Station Message) Output Equipment Printer, Data Terminal (Detail Recording) Detail Recording Date, Time, Ext. Number, CO Number, Calling Number, Calling Time, Account Code	
10. Dimensions	334 (W)×437 (H)×107 (D) mm (13 5/32"×17 7/32"×4 7/32")	
11. Weight	7.2 kg (15 lb 14 oz)	
12. Power Consumption	40 W (Max.)	

Characteristics

1. Station Loop Limit	KX-T61630/KX-T61620/KX-T61650/ KX-T30830/KX-T30820/KX-T30850 40 ohms Standard Telephone 600 ohms including set Doorphone 20 ohms	
2. Minimum Leak Resistance	15,000 ohms	
3. Maximum Number of Station Instruments per Line	1 (KX-T61630, KX-T61620, KX-T61650, KX-T30830, KX-T30820 or KX-T30850) or 6 sets/Ringing group	
4. Ring Voltage	90 Vrms at 20 Hz depends on Ringing Load	
5. Primary Power	120 Vac, 60 Hz, 0.4 A maximum	
6. Central Office Loop Limit	1600 ohms maximum	
7. Environmental Requirements	0-40°C, 10%-90%	
8. Hookswitch Flash Timing Range	204-1000 msec	

Ringing group (4 groups)				
Ext.	11,	15,	19,	23
Ext.	12,	16,	20,	24
Ext.	13,	17,	21,	25
Ext.	14,	18,	22,	26

Design and specifications are subject to change without notice.

NAME AND LOCATION

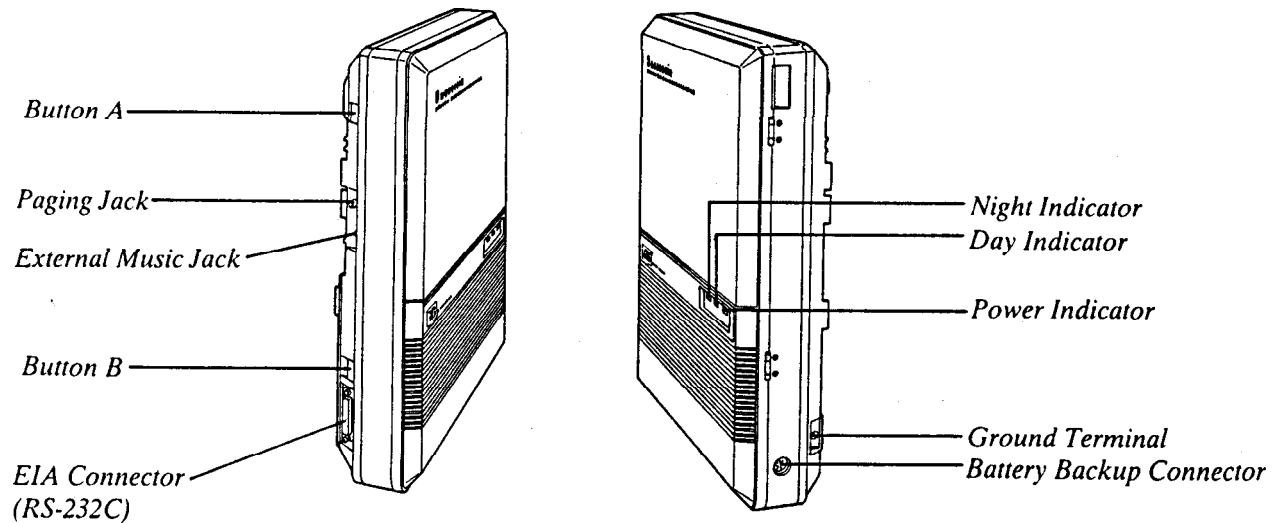


Fig. 3

Push Buttons A and B simultaneously to open Front Cover.

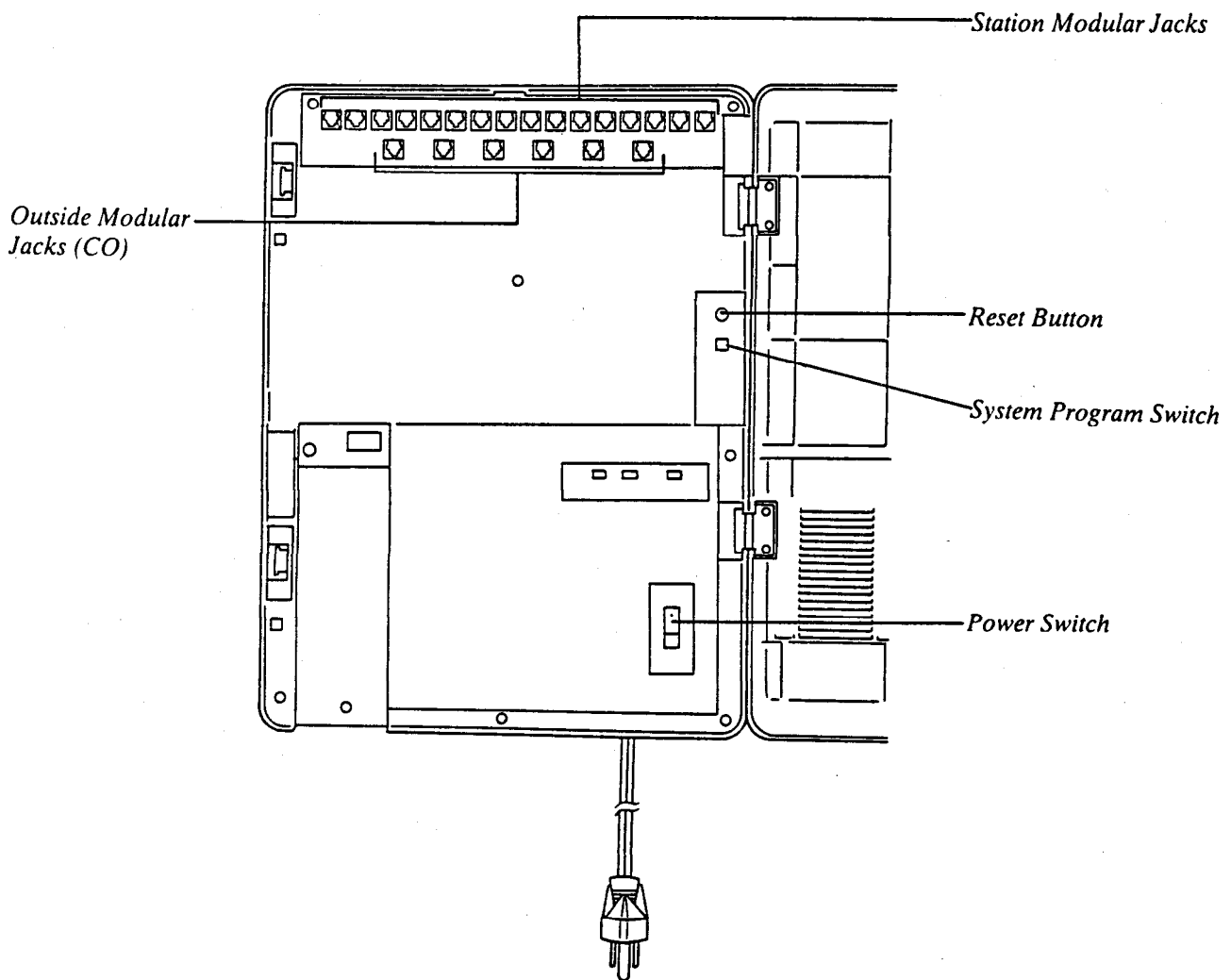


Fig. 4

CONNECTION

After all the connections are completed, turn the Power Switch ON.

If an extension does not operate properly (for example: The LCD of the KX-T61630/ KX-T30830 does not display properly.), disconnect the telephone from the extension line and then connect again, or turn OFF the power switch of the KX-T61610 and then ON again.

Optional System Back-up Unit (KX-A16)

120 V 60 Hz

6 Outsides

to CO 1
to CO 2
to CO 3
to CO 4
to CO 5
to CO 6

16 Extension Lines

• Parallel connections of the KX-T61630/ KX-T61620/ KX-T61650/ KX-T30830/ KX-T30820/ KX-T30850 is impossible.

Extension 11

KX-T61630

• Extension 11 must always be KX-T61630

KX-T30850

KX-T30830

KX-T30820

KX-T61650

KX-T61640

KX-T61620

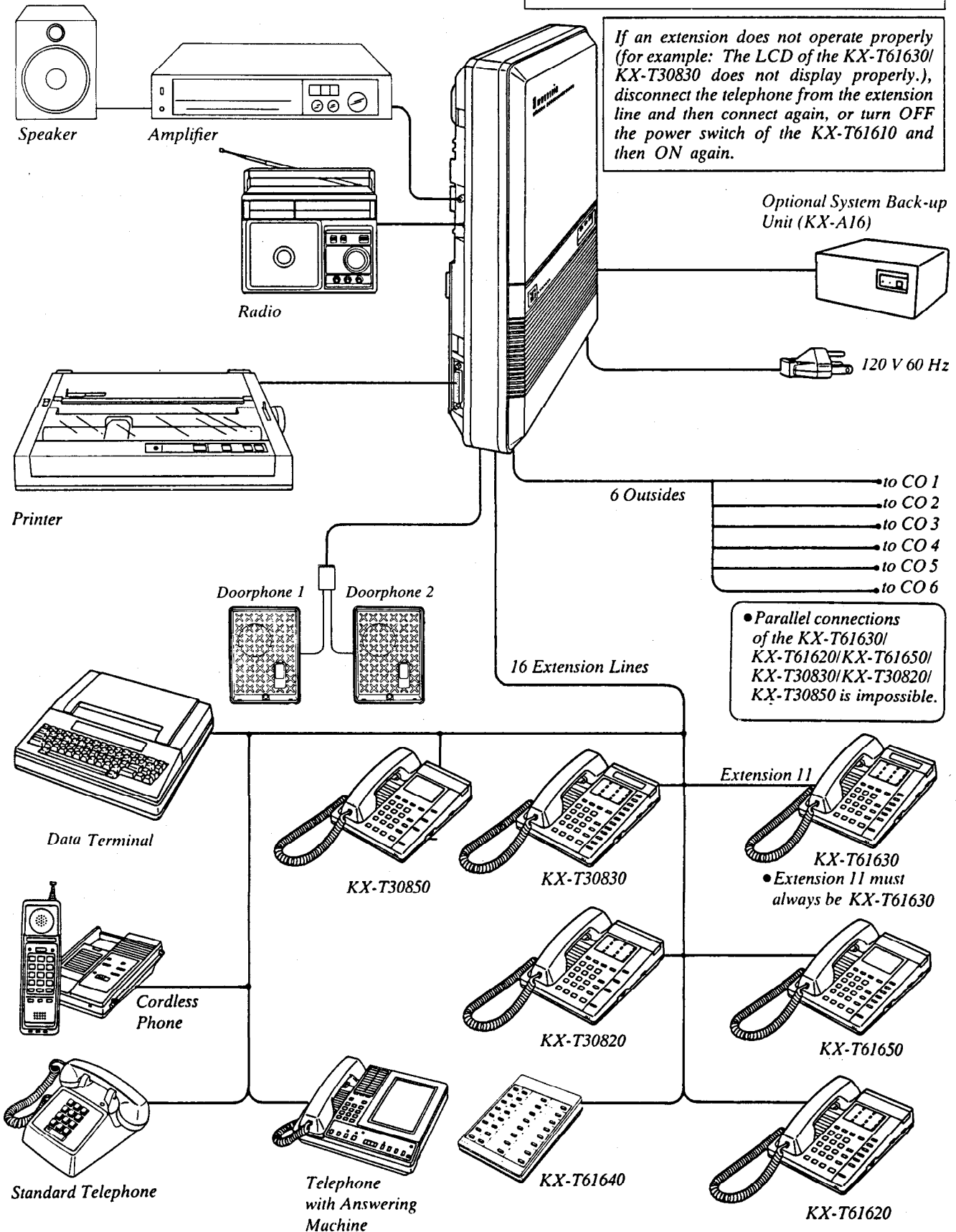


Fig. 5

PROGRAMMING

Programming Instructions

1. At extension 11:

All system programming changes (example: system clear, station program clear, toll restriction, hookswitch flash timing...) are done through extension 11.

• **Extension 11 must always be a Panasonic model, KX-T61630.**

2. System Program Switch setting:

The System Program Switch located on the KX-T61610 must be set to the PROGRAM position while making program changes. After all programming changes are completed, return the program switch to the SET position.

3. Overlay:

This overlay is used for programming the system and the program function names are inscribed on this card.

4. Before system programming, operate the system clear and station program clear to set to the default data of the programming.

A. System Clear:

1 Dial (99).

• "SYSTEM CLEAR" will be displayed.

2 Press the NEXT button.

• "ALL CLEAR?" will be displayed.

3 Press the MEMORY button to clear system.

4 To exit from system clear, press the END button.

The following features are preset as the default data.

Date and Time Setting

System Speed Dialing

CO Connection Assignment

Dial Mode (Tone/Pulse) Selection

Switching Mode (Day/Night Service)

Starting Time (Day/Night Service)

Flexible Day Outward Dialing Assignment

Flexible Night Outward Dialing Assignment

Flexible Day Ringing Assignment

Flexible Night Ringing Assignment

Toll Restriction—Class Assignment

Toll Restriction—Area Code Selection

Programmable Operator Call

Host PBX Access Codes Assignment

Automatic Answering (Automatic/Manual)
Selection

Preferred CO Line Assignment

Programmable Call Waiting

Duration Time Count Start Mode

SMDR Communication Parameters

System Data Dump

SMDR Incoming/Outgoing Selection

Hookswitch Flash Timing

Disconnect Time

Calling Party Control (CPC) Signal

Intercom Alerting Mode

Programmable Doorphone

Dial Call Pickup Group Assignment

Account Code Input Mode

Delayed Ringing Assignment

Delayed Ringing Count Selection

DSS Console Assignment

Hold Time Reminder

Hold Recall Time Set

Programmable External Paging Access Tone

DTMF Receiver

Programmable Toll Prefix

Programmable Secret Speed Dial

Programmable Directory Assistance

DSS Button Mode

Transfer Recall Time

M3/FWD Selection

B. Station Program Clear:

1 Dial (98).

• "EXT CLEAR" will be displayed.

2 Press the NEXT button.

• "ALL CLEAR?" will be displayed.

3 Press the MEMORY button to clear the system.

4 To exit from station clear, press the END button.

The following features are preset as the default data.

One Touch Dialing

Background Music

Call Forwarding

Data Line Security

Dial Call Pickup Deny

Do not Disturb

Auto CO Hunting

Pickup dial

Flexible CO Button

Flexible DSS Button

Example of Programming

1. Turn the Power Switch to ON

2. Set the System Program Switch to PROGRAM
The LCD on the KX-T61630 will show "ENTER PGM CODE".

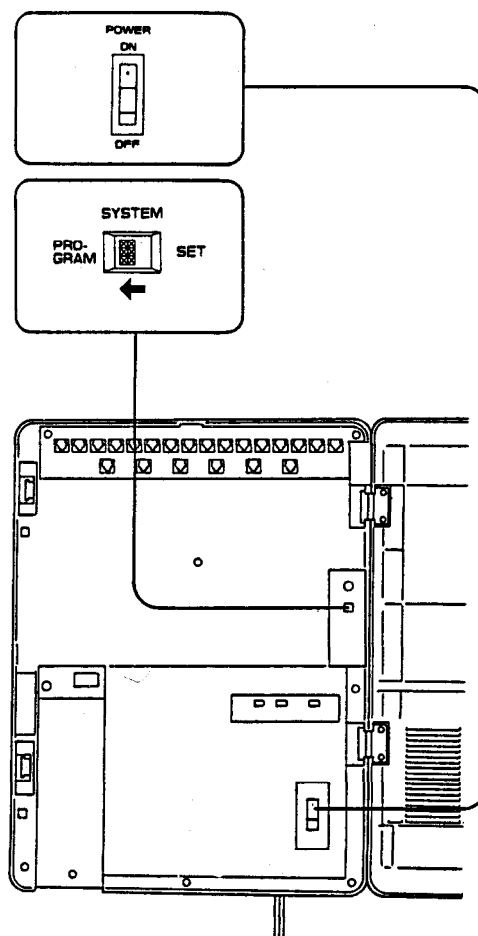
- Be sure the handset of extension 11 is in the cradle and the speakerphone button off.

3. To program automatic line access number 9 and the phone number 987-654-3210 speed access code 00.

KX-T61630 at extension 11 (Extension 11 must be a KX-T61630.)		
1.	Dial (01) or press the AUTO button.	Display SPEED DIALING
2.	Press the NEXT button.	ENTER SPEED CODE
3.	Dial (00) or press the NEXT button.	<ul style="list-style-type: none"> • If nothing is stored in access code "00". 00: NOT STORED • If already stored the automatic line access number 9 and the phone number 123-456-7890, 00: -123-456-7890
4.	① Dial "9". ② Press "-" button. ③ Dial "987". ④ Press "-" button. ⑤ Dial "654". ⑥ Press "-" button. ⑦ Dial "3210".	00: -987-654-3210
5.	Press the MEMORY button.	00: -987-654-3210
6.	<ul style="list-style-type: none"> • To program the next access code, press the NEXT button. • To program a desired access code, press the SELECT button and then dial the number. 	
7.	Repeat step 4 to 6.	
8.	To return to the initial program mode, press the END button.	ENTER PGM CODE

4. Return the System Program Switch to SET

- To make program change, start from the beginning.



While programming if a mistake is made,

1. Press the "END" button.
2. Start programming procedure from the beginning.

- You will hear a beep after pressing the MEMORY button.
- The MEMORY indicator light will go on when the MEMORY button is pressed, and then the Indicator light will go out when the NEXT or PREV button is pressed.

■ PROGRAMMING TABLE

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM
Date and Time Setting	[00]	[NEXT] [A] [↔] [SELECT] [↔] [B] [↔] [SELECT] [↔] [C] [↔] [D] [↔] [SELECT] [MEMORY] [END]

[illegible]

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																																																																																																																				
Toll Restriction—Area Code Selection	[12]	<div><div>[SELECT]</div><div>[NEXT] [AB] [C] [MEMORY] [END]</div><div>area code with 3 digits</div><div>Memory location number</div></div> <table><tr><td></td><td colspan="10">Memory location number</td></tr><tr><td></td><td>00</td><td>01</td><td>02</td><td>03</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td></tr><tr><td>Area code entry</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>		Memory location number											00	01	02	03	04	05	06	07	08	09	Area code entry																																																																																													
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Programmable Toll Prefix	[13]	<div><div>[NEXT] [SELECT] [MEMORY] [END]</div><div>WITH 1/ WITHOUT 1</div></div> <table><tr><td></td><td>Default</td><td>To make program change</td></tr><tr><td>With 1</td><td>x</td><td></td></tr><tr><td>Without 1</td><td></td><td></td></tr></table>		Default	To make program change	With 1	x		Without 1																																																																																																													
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Programmable Operator Call	[14]	<div><div>[NEXT] [NEXT] [SELECT] [MEMORY] [END]</div><div>ENABLE/DISABLE</div><div>until the desired extension number appears</div></div> <table><tr><td></td><td>Default</td><td colspan="26">To make program change</td></tr><tr><td>Extensions</td><td>all extensions</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Enable</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Disable</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>		Default	To make program change																										Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26													Enable	x																												Disable																												
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Programmable Directory Assistance	[15]	<div><div>[NEXT] [SELECT] [MEMORY] [END]</div><div>NO RESTRICT/RESTRICT</div></div> <table><tr><td></td><td>Default</td><td>To make program change</td></tr><tr><td>No restrict</td><td>x</td><td></td></tr><tr><td>Restrict</td><td></td><td></td></tr></table>		Default	To make program change	No restrict	x		Restrict																																																																																																													
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Automatic Answering (Automatic/ Manual) Selection	[16]	<div><div>[NEXT] [NEXT] [SELECT] [MEMORY] [END]</div><div>AUTO ANSWER/MAN ANSWER</div><div>until the desired extension number appears</div></div> <table><tr><td></td><td>Default</td><td colspan="26">To make program change</td></tr><tr><td>Extensions</td><td>all extensions</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Automatic</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Manual</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>		Default	To make program change																										Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26													Automatic	x																												Manual																												
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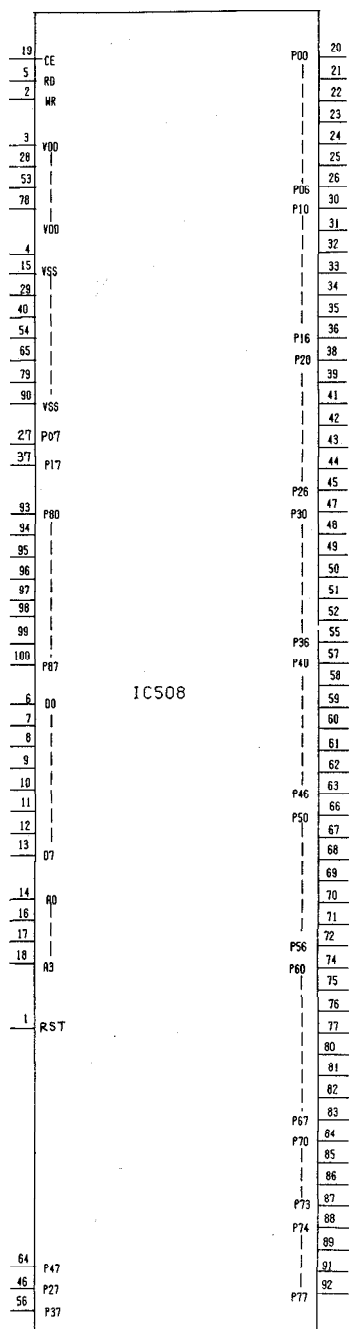
TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																																																																																																												
Dial Call Pickup Group Assignment	[24]	<div><div>[NEXT] [NEXT] [A...D] [MEMORY] [END]</div><div>----- dial the pickup group number</div><div>----- until the desired extension number appears</div><table><tr><th></th><th>Default</th><th colspan="16">To make program change</th></tr><tr><th>Extensions</th><th>all extensions</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th><th>17</th><th>18</th><th>19</th><th>20</th><th>21</th><th>22</th><th>23</th><th>24</th><th>25</th><th>26</th></tr><tr><td>Pickup Group 1</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Pickup Group 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Pickup Group 3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Pickup Group 4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div>		Default	To make program change																Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Pickup Group 1	x																	Pickup Group 2																		Pickup Group 3																		Pickup Group 4																	
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Account Code Input Mode	[25]	<div><div>[NEXT] [NEXT] [SELECT] [MEMORY] [END]</div><div>----- OPTION/FORCED</div><div>----- until the desired extension number appears</div><table><tr><th></th><th>Default</th><th colspan="16">To make program change</th></tr><tr><th>Extensions</th><th>all extensions</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th><th>17</th><th>18</th><th>19</th><th>20</th><th>21</th><th>22</th><th>23</th><th>24</th><th>25</th><th>26</th></tr><tr><td>Option</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Forced</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div>		Default	To make program change																Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Option	x																	Forced																																																					
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SMDR Communication Parameters	[27]	<div><div>(Carriage return for a new line)</div><div>[NEXT][SELECT][MEMORY]</div><div>----- CR+LF/CR</div><table><tr><th></th><th>Default</th><th>To make program change</th></tr><tr><td>CR+LF</td><td>x</td><td></td></tr><tr><td>CR</td><td></td><td></td></tr></table></div> <div><div>(Baud rate)</div><div>[NEXT][SELECT][MEMORY]</div><div>----- 110B/150B/300B/600B/1200B/2400B/4800B/9600B</div><table><tr><th></th><th>110B</th><th>150B</th><th>300B</th><th>600B</th><th>1200B</th><th>2400B</th><th>4800B</th><th>9600B</th></tr><tr><td>Default</td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td></td></tr><tr><td>To make program change</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div> <div><div>(Word length)</div><div>[NEXT][SELECT][MEMORY]</div><div>----- 7 BITS/8 BITS</div><table><tr><th></th><th>Default</th><th>To make program change</th></tr><tr><td>7 BITS</td><td>x</td><td></td></tr><tr><td>8 BITS</td><td></td><td></td></tr></table></div> <div><div>(Parity)</div><div>[NEXT][SELECT][MEMORY]</div><div>----- NONE/MARK/SPACE/EVEN/ODD</div><table><tr><th></th><th>None</th><th>Mark</th><th>Space</th><th>Even</th><th>Odd</th></tr><tr><td>Default</td><td></td><td>x</td><td></td><td></td><td></td></tr><tr><td>To make program change</td><td></td><td></td><td></td><td></td><td></td></tr></table></div>		Default	To make program change	CR+LF	x		CR				110B	150B	300B	600B	1200B	2400B	4800B	9600B	Default					x				To make program change										Default	To make program change	7 BITS	x		8 BITS				None	Mark	Space	Even	Odd	Default		x				To make program change																																																		
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TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																					
SMDR Communication Parameters		<p>(Stop bit length) [NEXT][SELECT][MEMORY] └----- 1 BIT/2 BITS</p> <table><tr><th></th><th>Default</th><th>To make program change</th></tr><tr><td>1 BIT</td><td>x</td><td></td></tr><tr><td>2 BITS</td><td></td><td></td></tr></table> <p>(Page length) [NEXT][AB][MEMORY] └----- 4 through 99 lines</p> <table><tr><th></th><th>Default</th><th>To make program change</th></tr><tr><td>Lines per page</td><td>66</td><td></td></tr></table> <p>(Skip perforation) [NEXT][AB][MEMORY][END] └----- 0 through 95 lines</p> <table><tr><th></th><th>Default</th><th>To make program change</th></tr><tr><td>Skipping lines</td><td>0</td><td></td></tr></table>		Default	To make program change	1 BIT	x		2 BITS				Default	To make program change	Lines per page	66			Default	To make program change	Skipping lines	0	
	Default	To make program change																					
1 BIT	x																						
2 BITS																							
	Default	To make program change																					
Lines per page	66																						
	Default	To make program change																					
Skipping lines	0																						
System Data Dump	[28]	<ul style="list-style-type: none">•SYSTEM PARA•SPEED DIAL•ALL PARA•STOP OUTPUT <p>[NEXT][SELECT][MEMORY][END] └----- SYSTEM PARA/CO PARA/EXT PARA/SPEED DIAL ALL PARA/STOP OUTPUT</p> <ul style="list-style-type: none">•CO PARA <p>[NEXT][SELECT][MEMORY][A][END] └----- dial CO number └----- until the CO PARA appears</p> <ul style="list-style-type: none">•EXT PARA <p>[NEXT][SELECT][MEMORY][AB][END] └----- dial extension number └----- until the EXT PARA appears</p>																					
SMDR Incoming/ Outgoing Selection	[29]	<p>[NEXT][SELECT][MEMORY][NEXT][SELECT][MEMORY][END] └----- OUTGOING: ON/OFF └----- INCOMING: ON/OFF</p> <table><tr><th rowspan="2"></th><th colspan="2">Outgoing</th><th colspan="2">Incoming</th></tr><tr><th>ON</th><th>OFF</th><th>ON</th><th>OFF</th></tr><tr><td>Default</td><td>x</td><td></td><td>x</td><td></td></tr><tr><td>To make program change</td><td></td><td></td><td></td><td></td></tr></table>		Outgoing		Incoming		ON	OFF	ON	OFF	Default	x		x		To make program change						
	Outgoing			Incoming																			
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To make program change																							

[illegible]

TO SET	PROGRAM ADDRESS	STEPS REQUIRED TO CHANGE PROGRAM																																																																																							
DSS Button Mode	[37]	<div>[NEXT] [SELECT] [MEMORY] [END]</div> <div>----- WITHOUT TRANSFER/WITH TRANSFER</div> <table><tr><th></th><th>Default</th><th colspan="2">To make program change</th></tr><tr><td>Without transfer</td><td>x</td><td></td><td></td></tr><tr><td>With transfer</td><td></td><td></td><td></td></tr></table>																	Default	To make program change		Without transfer	x			With transfer																																																															
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DTMF Receiver Check	[38]	<div>[NEXT] [SELECT] [MEMORY] [END]</div> <div>----- ENABLE/DISABLE</div> <div>--- until the desired DTMF receiver appears</div> <table><tr><th></th><th>Default</th><th colspan="2">To make program change</th></tr><tr><td>DTMF receiver</td><td>1, 2</td><td>1</td><td>2</td></tr><tr><td>Enable</td><td>x</td><td></td><td></td></tr><tr><td>Disable</td><td></td><td></td><td></td></tr></table>																	Default	To make program change		DTMF receiver	1, 2	1	2	Enable	x			Disable																																																											
	Default	To make program change																																																																																							
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Enable	x																																																																																								
Disable																																																																																									
Transfer Recall Time	[39]	<div>[NEXT] [SELECT] [MEMORY] [END]</div> <div>----- 30 SEC/15 SEC</div> <table><tr><th></th><th>Default</th><th colspan="2">To make program change</th></tr><tr><td>30 sec</td><td>x</td><td></td><td></td></tr><tr><td>15 sec</td><td></td><td></td><td></td></tr></table>																	Default	To make program change		30 sec	x			15 sec																																																															
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15 sec																																																																																									
M3/FWD Selection	[40]	<div>[NEXT][NEXT][SELECT][MEMORY][END]</div> <div>----- FEATURE KEY/FWD, DND KEY</div> <div>--- until the desired extension number appears</div> <table><tr><th></th><th>Default</th><th colspan="16">To make program change</th></tr><tr><td>Extensions</td><td>all extensions</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr><tr><td>Feature key</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>FWD/DND key</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																	Default	To make program change																Extensions	all extensions	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Feature key	x																	FWD/DND key																	
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Feature key	x																																																																																								
FWD/DND key																																																																																									
Station Program Clear	[98]	[NEXT][MEMORY][END]																																																																																							
System Clear	[99]	[NEXT][MEMORY][END]																																																																																							

IC I/O DATA

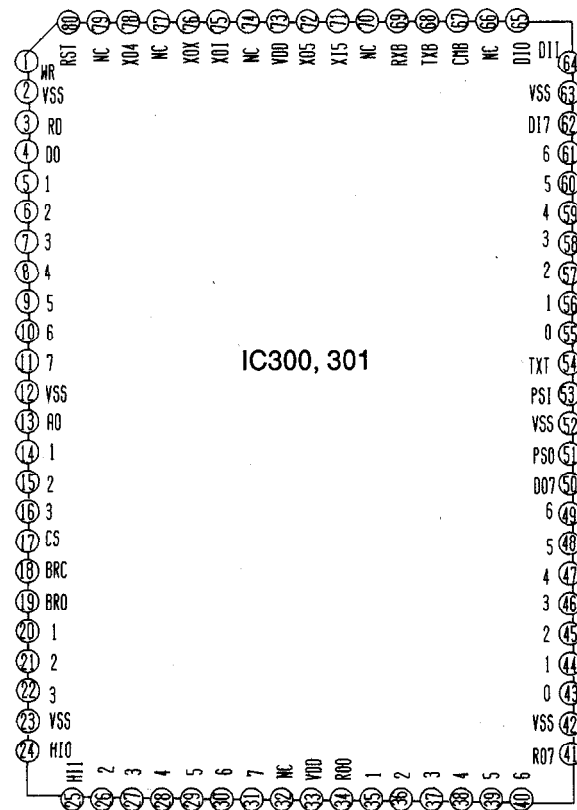


IC508

Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
P00	20	O	SH1: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P01	21	O	MT1: CO Amp Mute Control	Mute	Mute	Non Mute	
P02	22	O	HD1: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P03	23	O	CF1: CO Amp Conference	Non Conference	Non Conference	Conference	
P04	24	O	DL1: Line Close, Dial Transmission	Break	Break	Make	
P05	25	O	DS1: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P06	26	I	BELL1: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P07	27	I	SID: DTMF Signal Detection 1	----	----	----	
P10	30	O	SH2: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P11	31	O	MT2: CO Amp Mute Control	Mute	Mute	Non Mute	
P12	32	O	HD2: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P13	33	O	CF2: CO Amp Conference	Non Conference	Non Conference	Conference	
P14	34	O	DL2: Line Close, Dial Transmission	Break	Break	Make	
P15	35	O	DS2: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P16	36	I	BELL2: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P17	37	I	SID: DTMF Signal Detection 2	----	----	----	
P20	38	O	SH3: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P21	39	O	MT3: CO Amp Mute Control	Mute	Mute	Non Mute	
P22	41	O	HD3: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P23	42	O	CF3: CO Amp Conference	Non Conference	Non Conference	Conference	
P24	43	O	DL3: Line Close, Dial Transmission	Break	Break	Make	
P25	44	O	DS3: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P26	45	I	BELL3: Bell, CPC Input	----	No Bell, Break	Bell, Make	
P27	46	O	DAY: Day Mode LED Control	Lights-out	Lights-out	Lighting	
P30	47	O	SH4: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P31	48	O	MT4: CO Amp Mute Control	Mute	Mute	Non Mute	
P32	49	O	HD4: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P33	50	O	CF4: CO Amp Conference	Non Conference	Non Conference	Conference	
P34	51	O	DL4: Line Close, Dial Transmission	Break	Break	Make	
P35	52	O	DS4: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P36	55	I	BELL4: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P37	56	O	NIGHT: Night Mode LED Control	Lights-out	Lights-out	Lighting	
P40	57	O	SH5: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P41	58	O	MT5: CO Amp Mute Control	Mute	Mute	Non Mute	
P42	59	O	HD5: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P43	60	O	CF5: CO Amp Conference	Non Conference	Non Conference	Conference	
P44	61	O	DL5: Line Close, Dial Transmission	Break	Break	Make	
P45	62	O	DS5: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P46	63	I	BELL5: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P47	64	O	PD RLY: Power Failure Control	Break	Break	Make	
P50	66	O	SH6: CO Amp Shunt Control	Non Shunt	Non Shunt	Shunt	
P51	67	O	MT6: CO Amp Mute Control	Mute	Mute	Non Mute	
P52	68	O	HD6: CO Amp Hold Tone Control	Non Transmission	Non Transmission	Transmission	
P53	69	O	CF6: CO Amp Conference	Non Conference	Non Conference	Conference	
P54	70	O	DL6: Line Close, Dial Transmission	Break	Break	Make	
P55	71	O	DS6: Spark Erase Relay Control	Break	Break	Make	(RSVD)
P56	72	I	BELL6: Bell, CPC Input	----	No Bell, Line Break	Bell, Line Make	
P57	73	—	Not Used	----	----	----	
P60	74	O	TA0: Cross Point Data	Data Low	Data Low	Data High	
P61	75	O	TA1: Cross Point Data	Data Low	Data Low	Data High	
P62	76	O	TA2: Cross Point Data	Data Low	Data Low	Data High	
P63	77	O	TA3: Cross Point Data	Data Low	Data Low	Data High	
P64	78	O	TA4: Cross Point Data	Data Low	Data Low	Data High	
P65	81	O	TA5: Cross Point Data	Data Low	Data Low	Data High	
P66	82	O	TA6: Cross Point Data	Data Low	Data Low	Data High	
P67	83	O	TA7: Cross Point Data	Data Low	Data Low	Data High	

IC508

Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
P70	84	O	A: Cross Point Address	Address Low	Address Low	Address High	
P71	85	O	B: Cross Point Address	Address Low	Address Low	Address High	
P72	86	O	C: Cross Point Address	Address Low	Address Low	Address High	
P73	87	O	D: Cross Point Address	Address Low	Address Low	Address High	
P74	88	O	STB1: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P75	89	O	STB2: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P76	91	O	STB3: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P77	92	O	STB4: Cross Point Strobe	Strobe Low	Strobe Low	Strobe High	
P80	93	O	ROW1: PB Signal Generator, 1 Line	Uncertainty	High	Low	
P81	94	O	ROW2: PB Signal Generator, 2 Line	Uncertainty	High	Low	
P82	95	O	ROW3: PB Signal Generator, 3 Line	Uncertainty	High	Low	
P83	96	O	ROW4: PB Signal Generator, 4 Line	Uncertainty	High	Low	
P84	97	O	COL1: PB Signal Generator, 1 Row	Uncertainty	High	Low	
P85	98	O	COL2: PB Signal Generator, 2 Row	Uncertainty	High	Low	
P86	99	O	COL3: PB Signal Generator, 3 Row	Uncertainty	High	Low	
P87	100	O	COL4: PB Signal Generator, 4 Row	Uncertainty	High	Low	

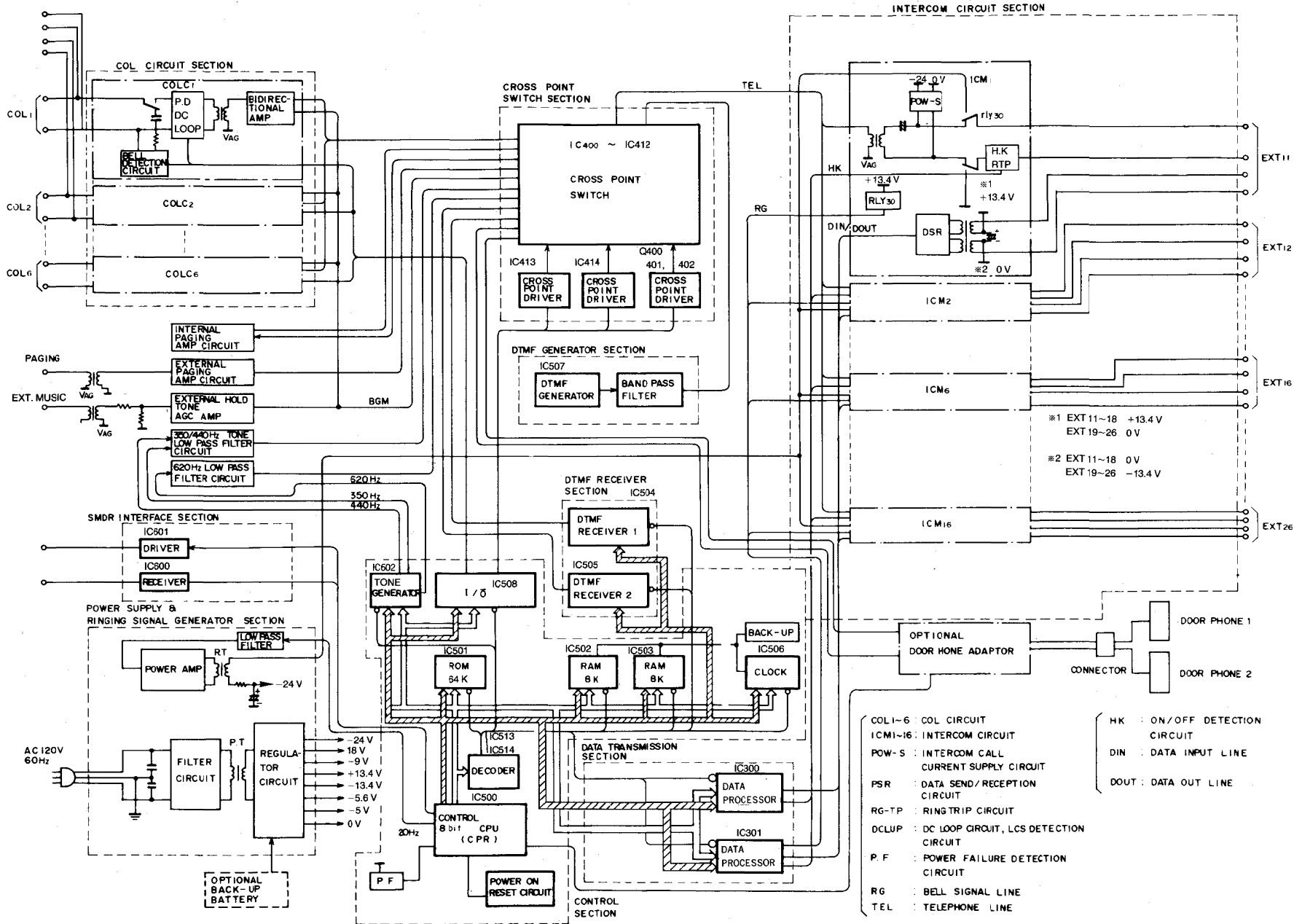


1	VSS	E	64
2	XTAL	RD	63
3	EXTAL	WR	62
4	MP0	R/W	61
5	PP1	LIR	60
6	RES	BA	59
7	STBY	DO	58
8	NMI	1	57
9	P20	2	56
10	P21	3	55
11	P22	4	54
12	RX	5	53
13	TX	6	52
14	P25	7	51
15	P26	A0	50
16	P27	1	49
17	P50	2	48
18	IRQ2	3	47
19	P52	4	46
20	HALT	5	45
21	P54	6	44
22	P55	7	43
23	P56	VSS	42
24	P57	A8	41
25	P60	9	40
26		10	39
27		11	38
28		12	37
29		13	36
30		14	35
31		15	34
32	P67	VCC	33

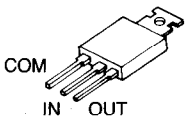
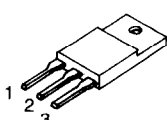

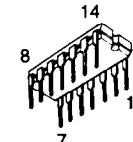
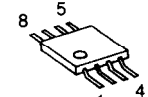
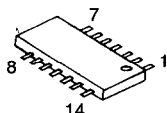
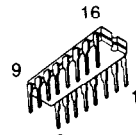
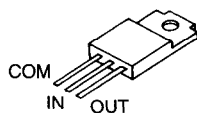
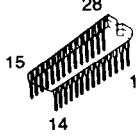
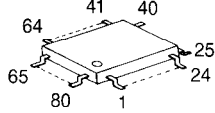
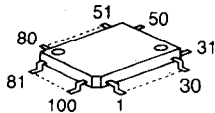
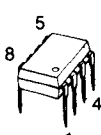
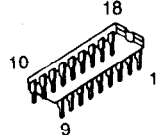
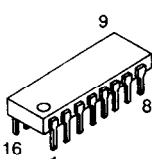
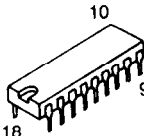
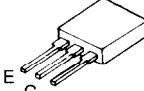
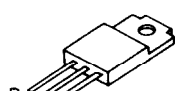
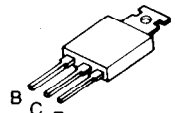

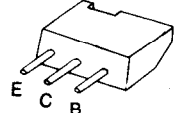

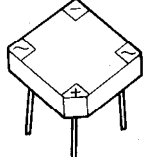
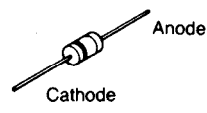
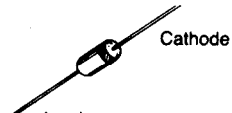
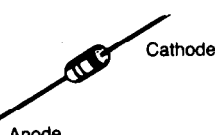
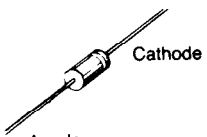


IC500

Port	Pin No.	I/O	Signal Name	High Imp.	High Level	Low Level	Remarks
NMI	8	I	CPU Restart	----	----	----	
P20	9	I	OL1: EXT. Over Current Detection (-)	----	Normal	Over Current	EXT. 19-26
P21	10	I	OL2: EXT. Over Current Detection (+)	----	Over Current	Normal	EXT. 11-18
P22	11	O	BRK1: EXT. Over Current Protection (-)	Break	Break	ON	EXT. 19-26
RX	12	I	RXD	----	----	----	
TX	13	O	TXD	----	----	----	
P25	14	O	BRK2: EXT. Over Current Protection (+)	Break	Break	ON	EXT. 11-18
P26	15	O	BUSY1: Doorphone 1 ON/OFF Control	OFF	OFF	ON	
P27	16	O	BUSY2: Doorphone 2 ON/OFF Control	OFF	OFF	ON	
P50	17	—	-----	----	----	----	
IRQ2	18	I	PF: Power Down Detection	----	Power Down	Normal	
P52	19	I	DROPT: Doorphone Adaptor Connect Detection	Non-Connect	Connect		
HALT	20	I	HALT: Halt Control Input	Normal	Power Down		
P54	21	I	DHK1: Doorphone 1 Hook Detection	On-Hook	Off-Hook		
P55	22	I	DHK2: Doorphone 2 Hook Detection	On-Hook	Off-Hook		
P56	23	I	CNCT1: Doorphone 1 Connect Detection	Connect	Non-Connect		
P57	24	I	CNCT2: Doorphone 2 Connect Detection	Connect	Non-Connect		
P60	25	—	-----	----	----	----	
P61	26	O	BANK: Bank Select Control	----	----	----	
P62	27	I	CTS	----	----	----	
P63	28	—	-----	----	----	----	
P64	29	I	DSR	----	----	----	
P65	30	I	DTR	----	----	----	
P66	31	O	PF: Power Down Control	----	Power Down	Normal	
P67	32	O	20Hz: Bell Signal Output	----	----	----	

BLOCK DIAGRAM

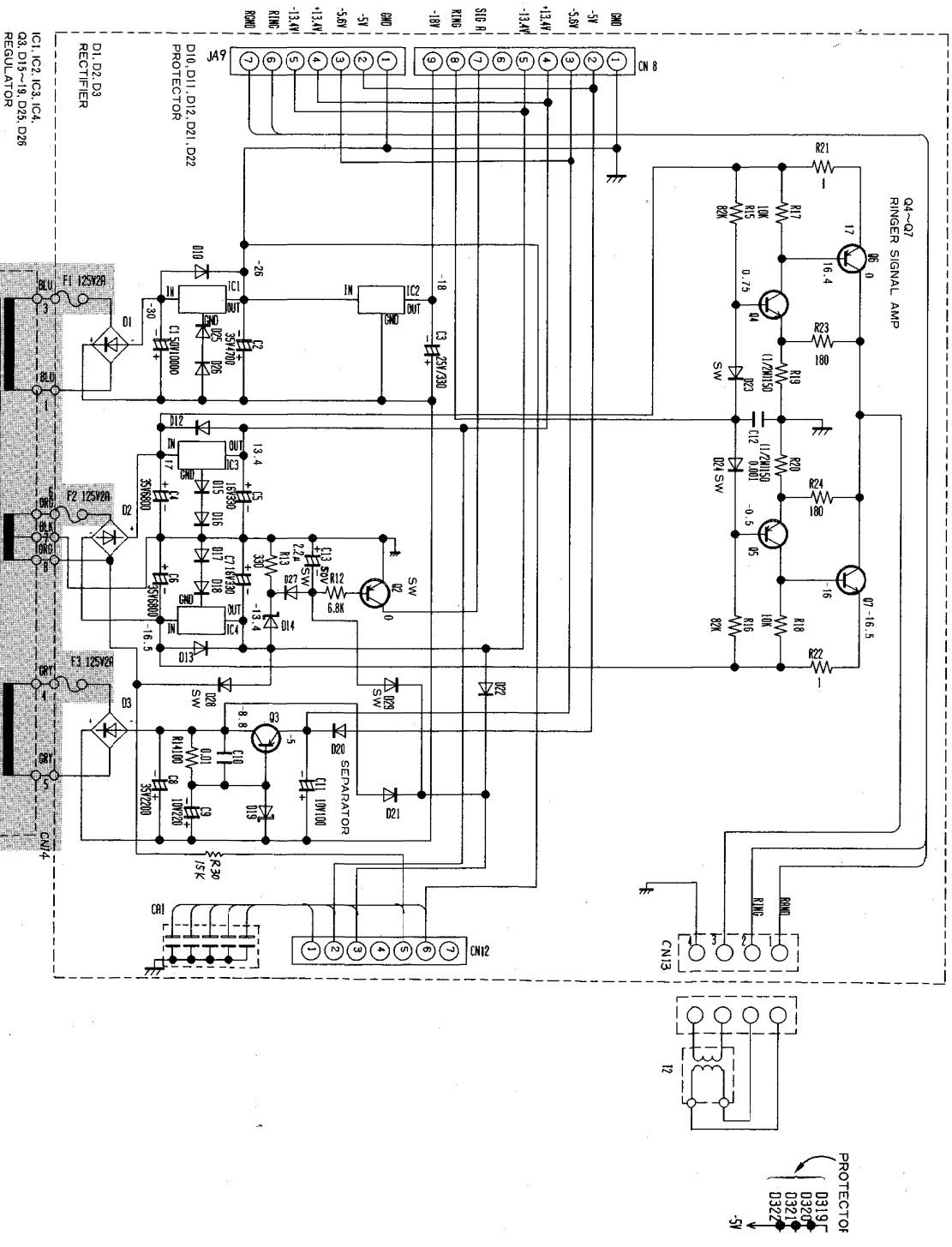


TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 <p>COM IN OUT</p> <p>PQVITA7924 PQVITA7812AF</p>	 <p>1 2 3</p> <p>AN7912T</p>	 <p>1 32</p> <p>PQVIH63B03XP</p>	 <p>14 8 7 1</p> <p>PQVITC7H04P PQVITC7H08P PQVIHD75188P PQVIHD75189P</p>	 <p>8 5 1 4</p> <p>PQVINJM4558M</p>
 <p>7 1 8 14</p> <p>PQVITC4066BF</p>	 <p>16 9 1 8</p> <p>PQVITD62706P PQVITC7H139P PQVITC7H138P</p>	 <p>COM IN OUT</p> <p>PQVIPC79M18F</p>	 <p>28 15 1 14</p> <p>PQVIHM6264LA PQWIT61610M2</p>	 <p>41 40 25 24 1 80 65 64</p> <p>PQVI671152F</p>
 <p>51 50 31 30 1 100 81 80</p> <p>PQVI63HB110</p>	 <p>5 8 4 1</p> <p>PQVINJM4558D</p>	 <p>18 10 1 9</p> <p>PQVIMT8870BC</p>		
 <p>9 8 1 16</p> <p>PQVILR4089 PQVIBU3140</p>	 <p>10 9 1 18</p> <p>PQVIMS6242BS</p>	 <p>E C B</p> <p>2SA1626</p>	 <p>B C E</p> <p>2SB1015 2SD1406</p>	
 <p>B C E</p> <p>2SB834 2SC2590</p>	 <p>E C B</p> <p>2SA881, 2SB644 2SC2673, 2SD639</p>	 <p>E C B</p> <p>DTA124EA DTA124XA DTA143A DTA144A 2SA937 2SC2021 PQVTDTC114Y</p>	 <p>E C B</p> <p>2SC2878</p>	
 <p>PQVD2B4B41 PQVD3B4B41</p>	 <p>Anode Cathode</p> <p>MA4110</p>	 <p>Cathode Anode</p> <p>1SS131 1SR35-200 MA4030 PQVDHZS2B1 PQVD1SV124</p>	 <p>Cathode Anode</p> <p>MA1056 MA4036 MA4047 MA4062 MA4091</p>	
 <p>Cathode Anode</p> <p>PQVDEK03</p>	 <p>PQVDS1YB40F1</p>	 <p>Anode Cathode</p> <p>LN220RPH LN320GPH LN420YPH</p>		

A

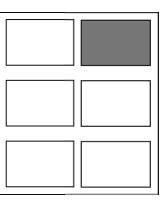
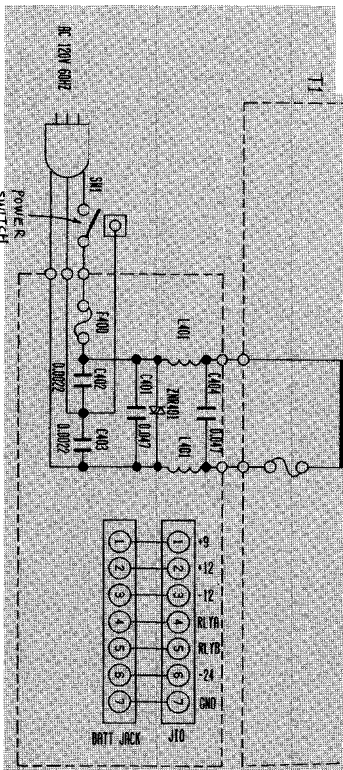
POWER REGULATOR BOARD



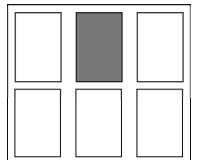
IC1, IC2, IC3, IC4,
Q3, D13~19, D23, D26
REGULATOR

D1, D2, D3
RECTIFIER

D10, D11, D12, D21, D22
PROTECTOR



12



F

G

H

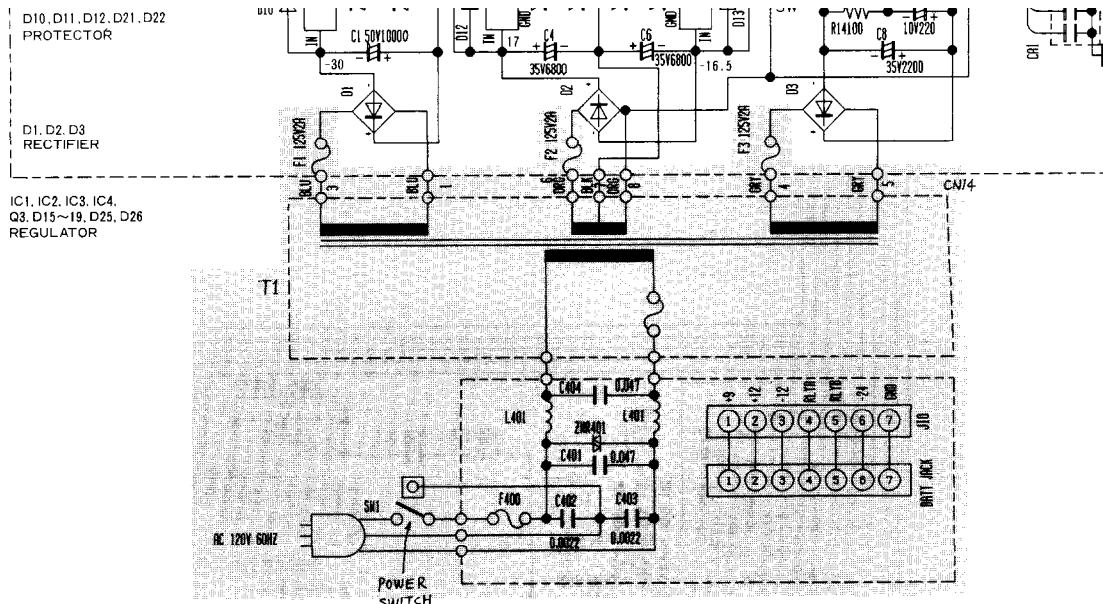
I

J

K

L

M



Notes:

1. DC voltage measurements are taken with electronic voltmeter and oscilloscope from ground line.

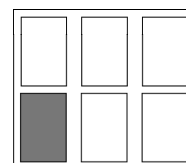
• Power Switch ON condition
 • Voltage Value: V

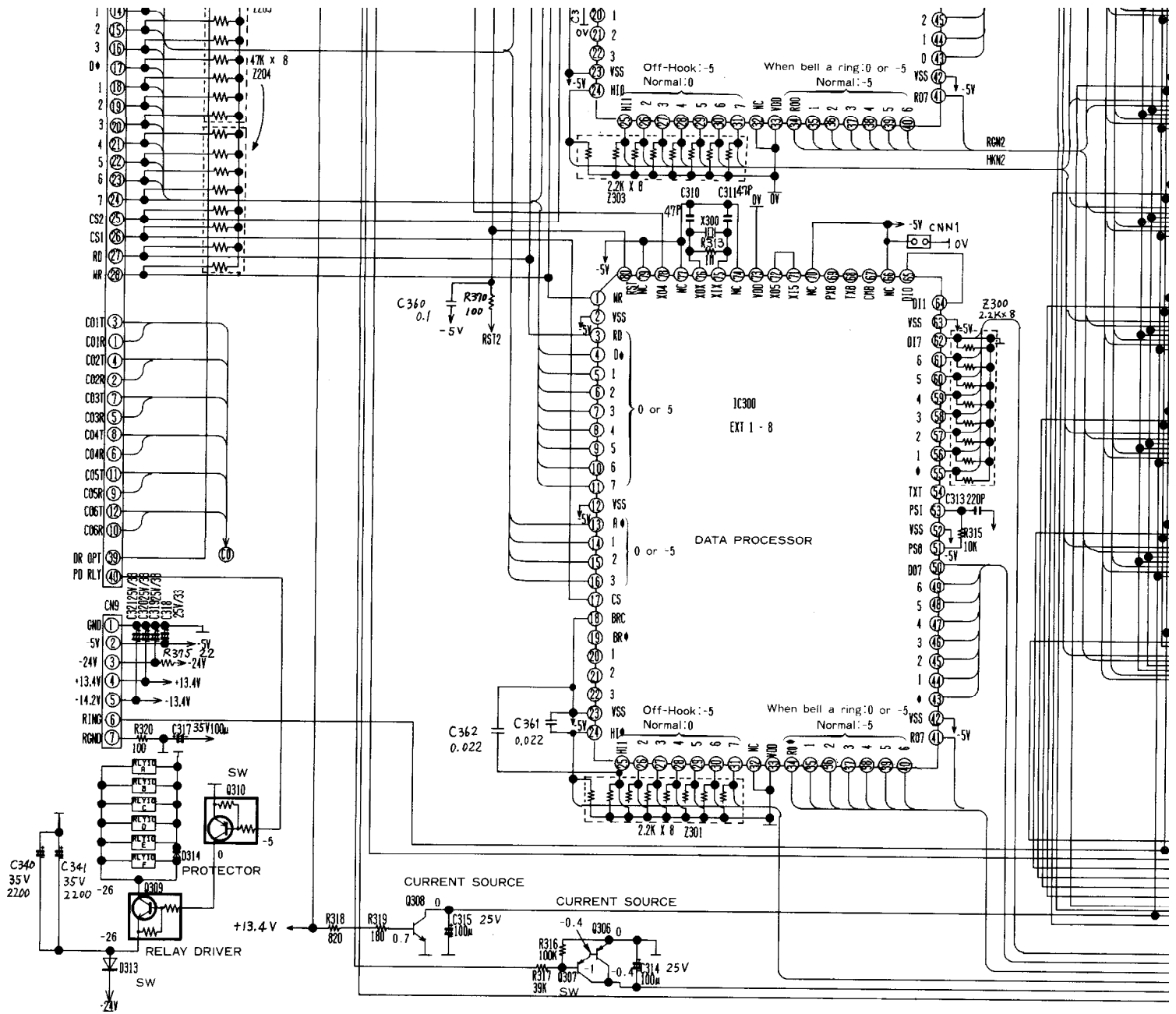
2. This schematic diagram may be modified at any time with the development of new technology.

3. **Important safety notice**
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

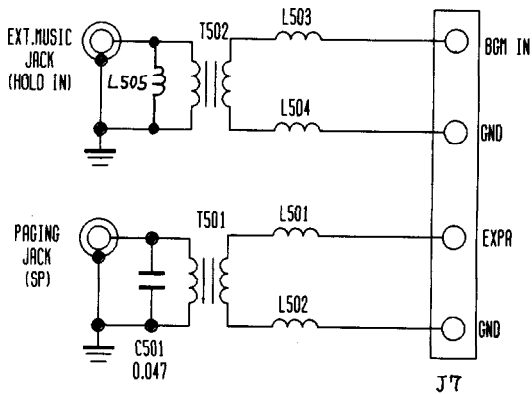
4.

Varicap. Anode Cathode	General Anode Cathode	Zener Anode Cathode	LED Anode Cathode	Photo Diode Cathode Anode
---	--	--------------------------------------	------------------------------------	--

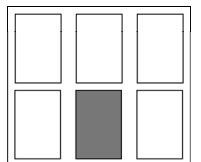
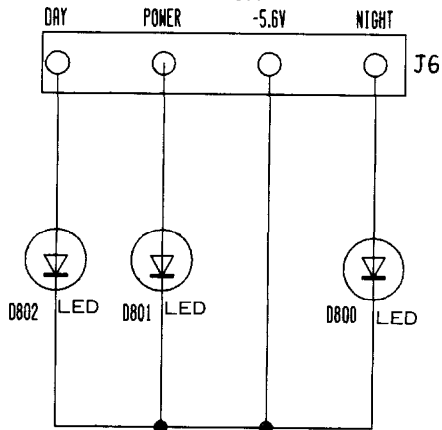




JACK BOARD



LED BOARD



1

2

3

4

5

6

7

A

B

C

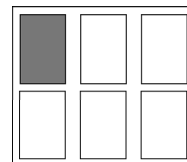
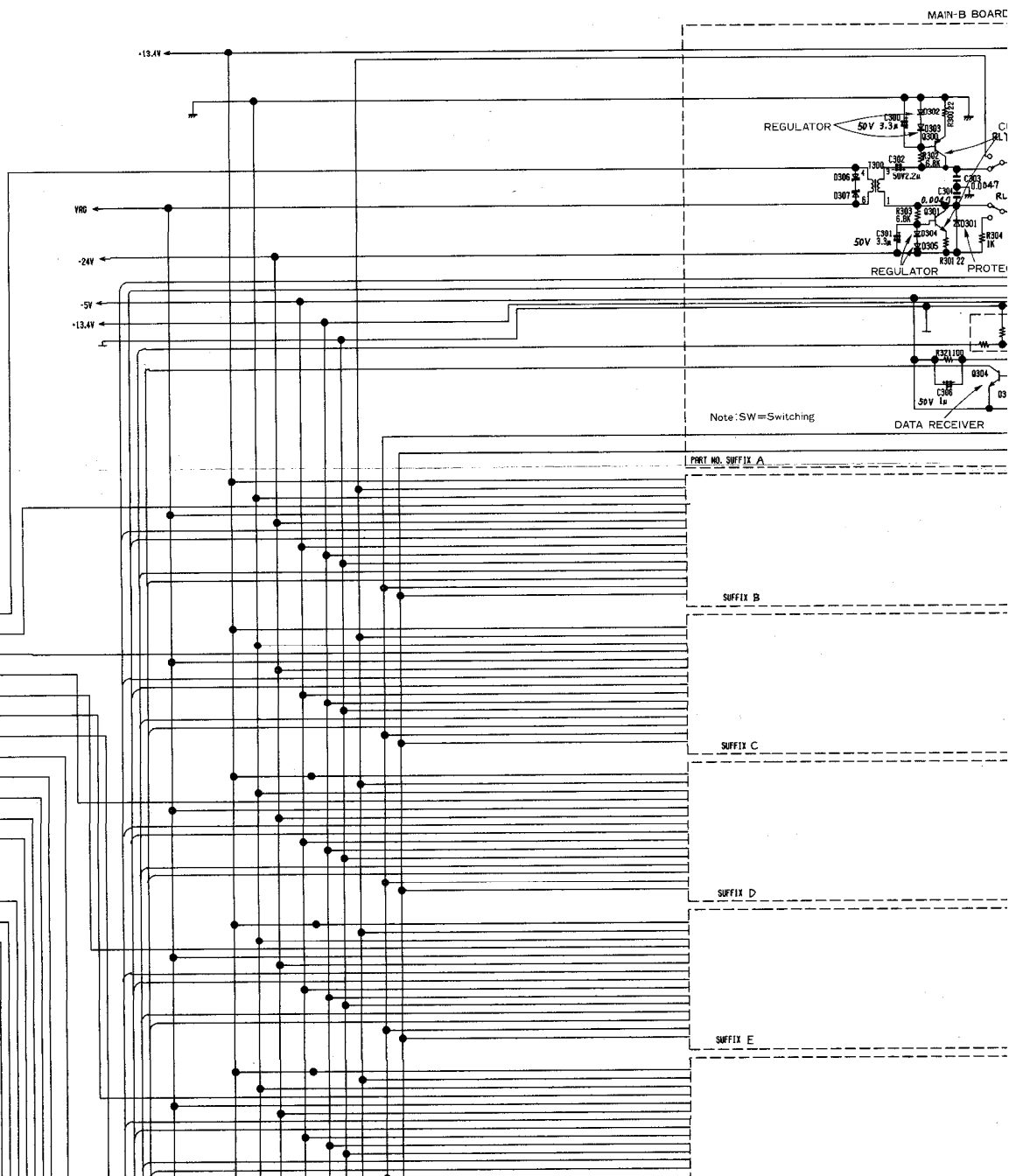
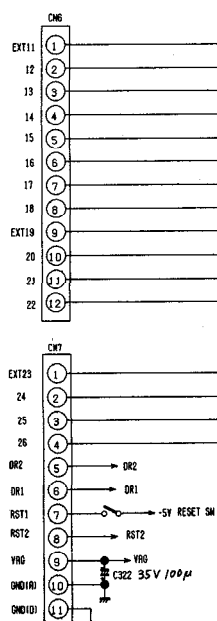
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E

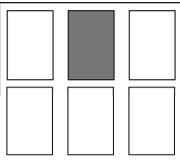
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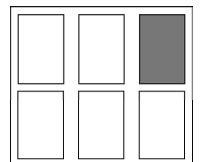
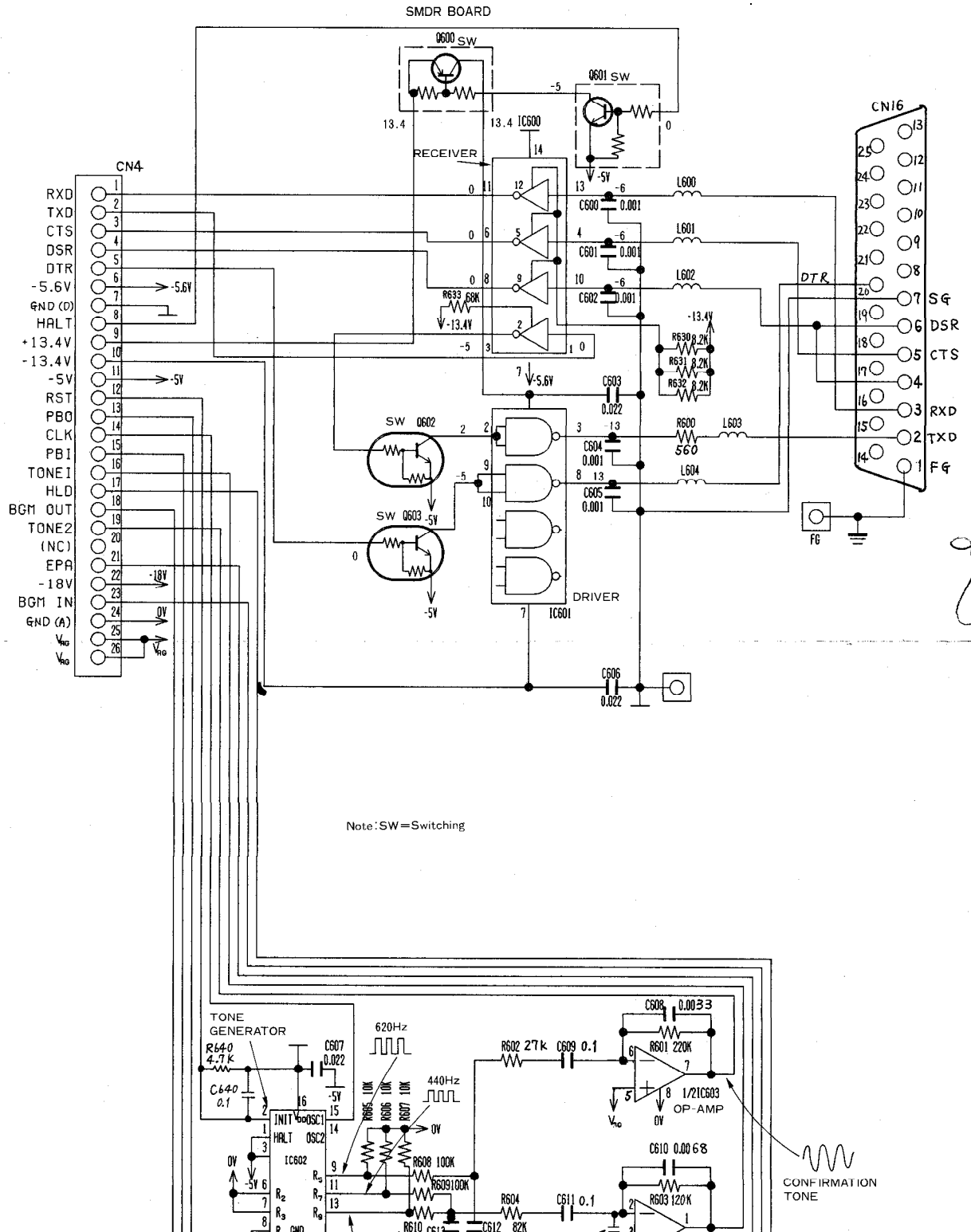
G

H

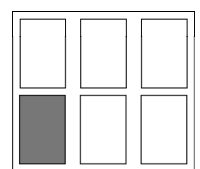
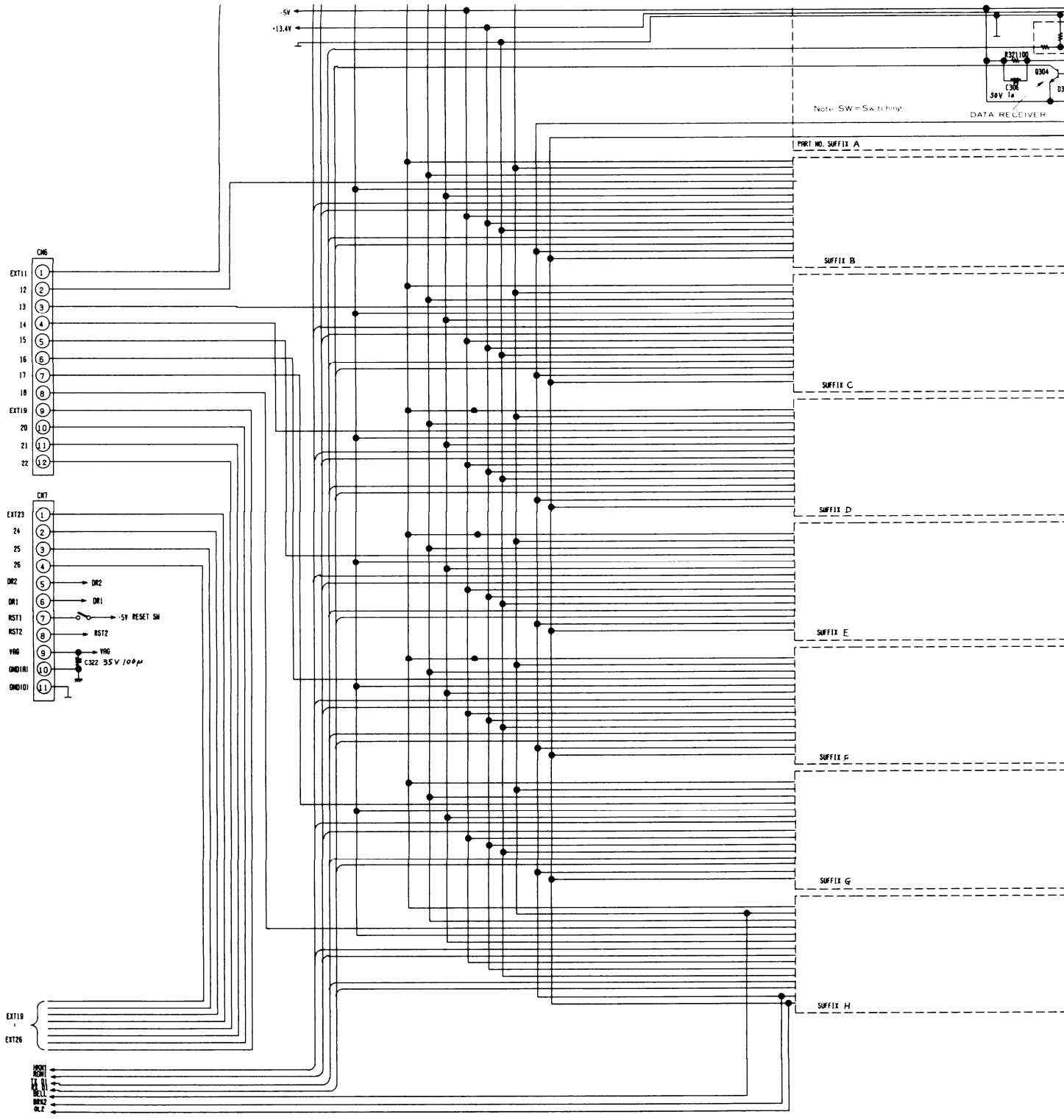


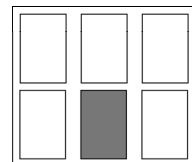
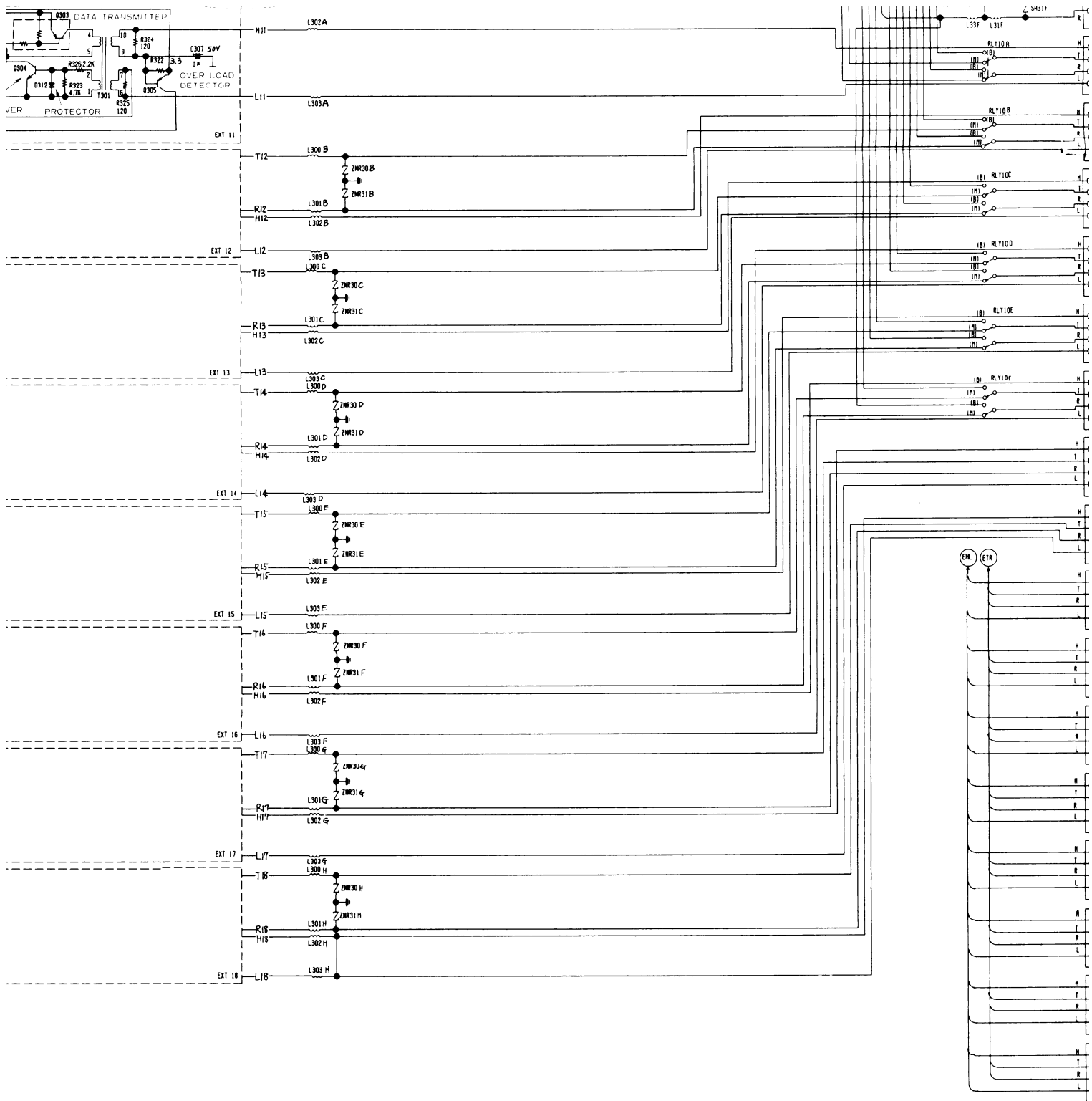
7 | 8 | 9 | 10 | 11 | 12 | 13

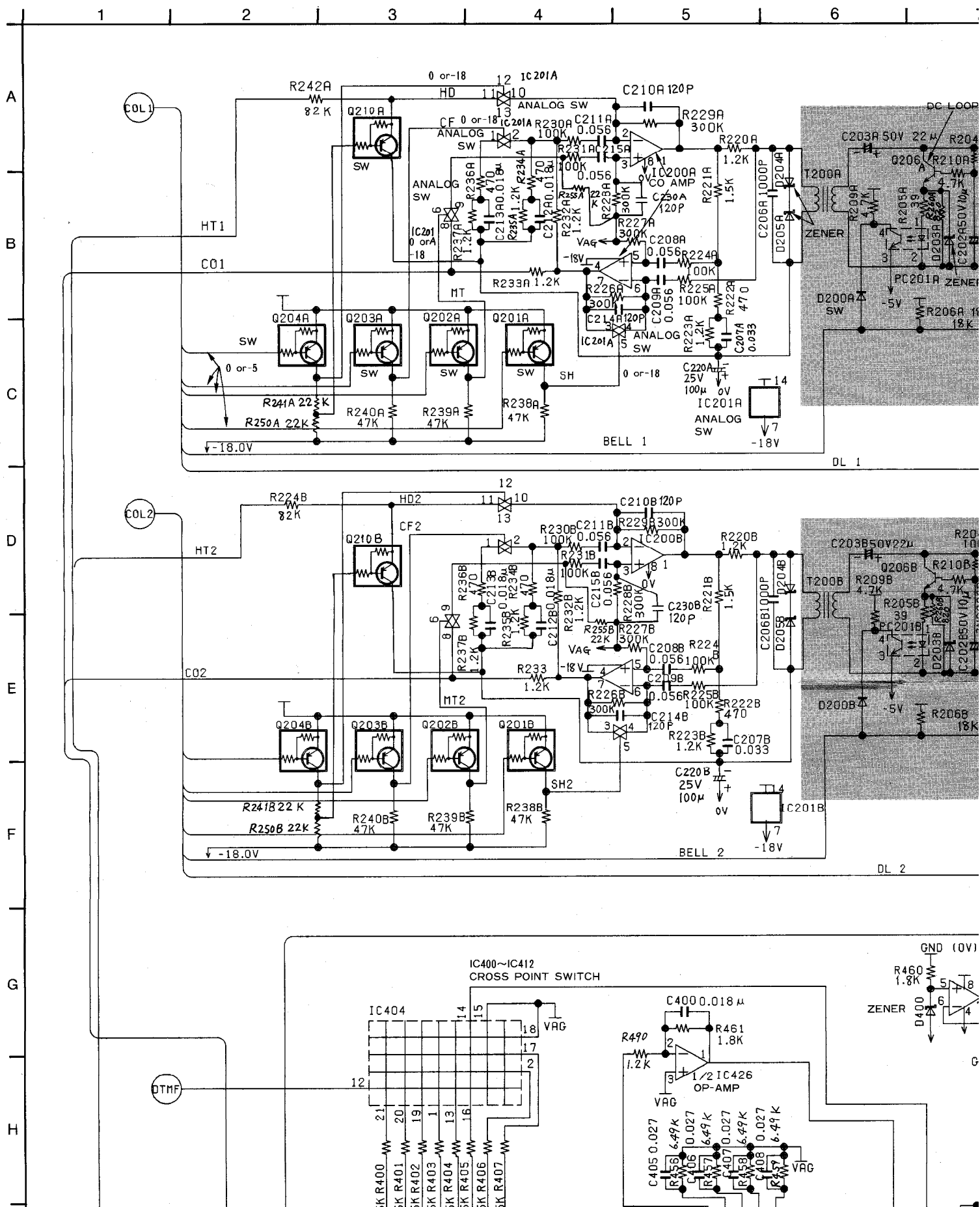




E
F
G
H
I
J
K

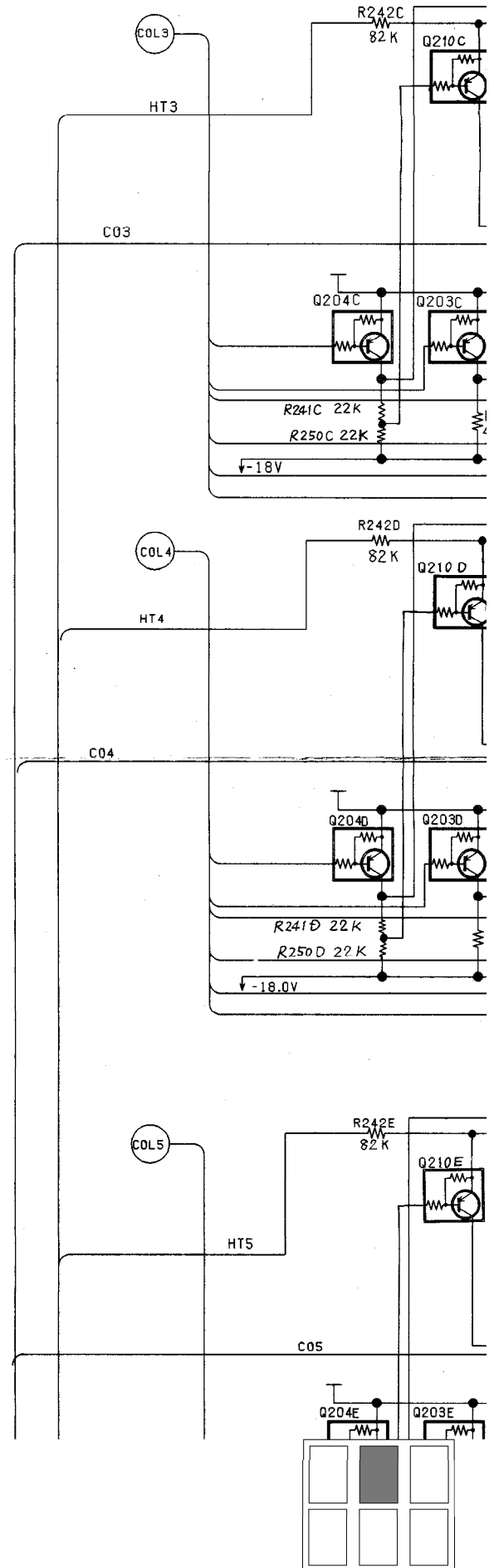
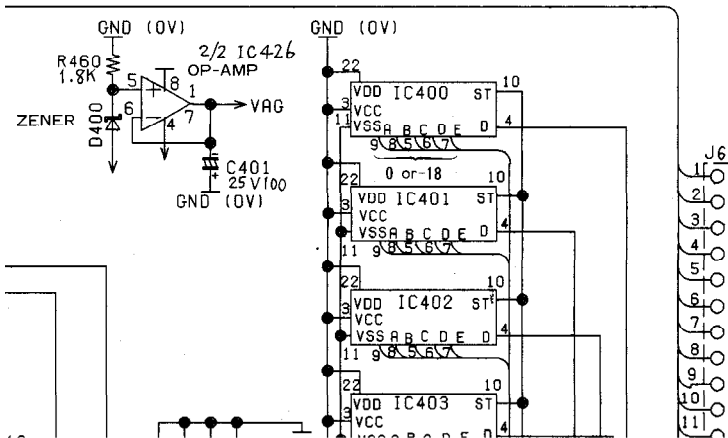
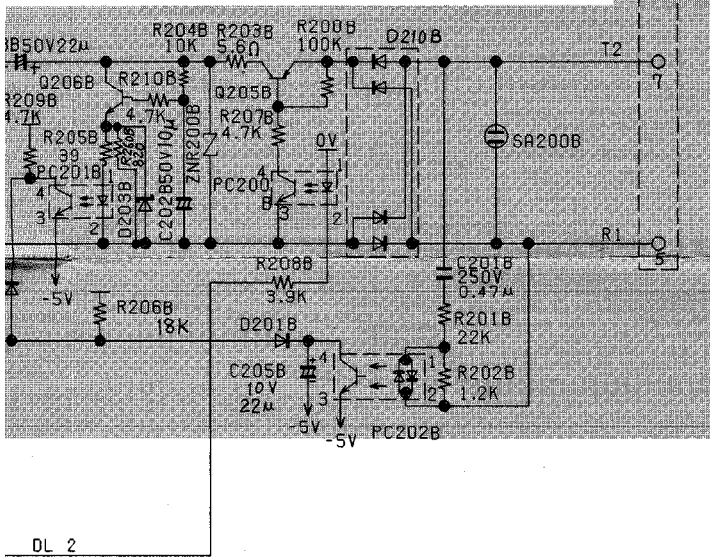
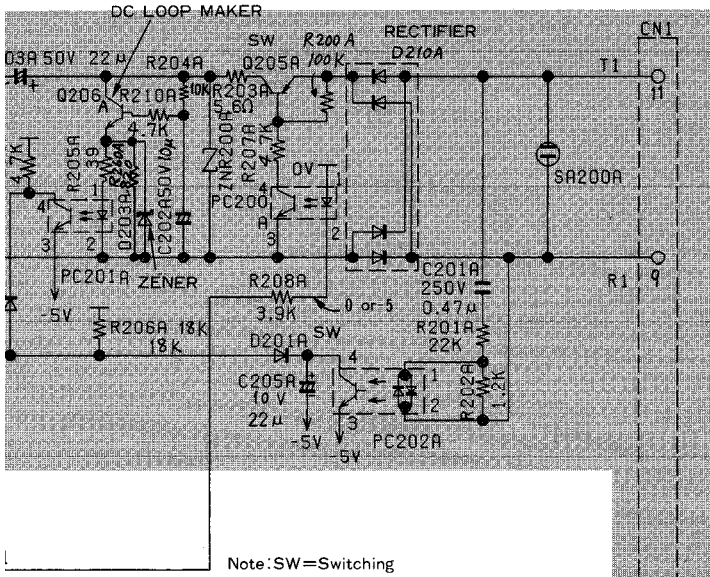


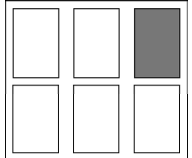
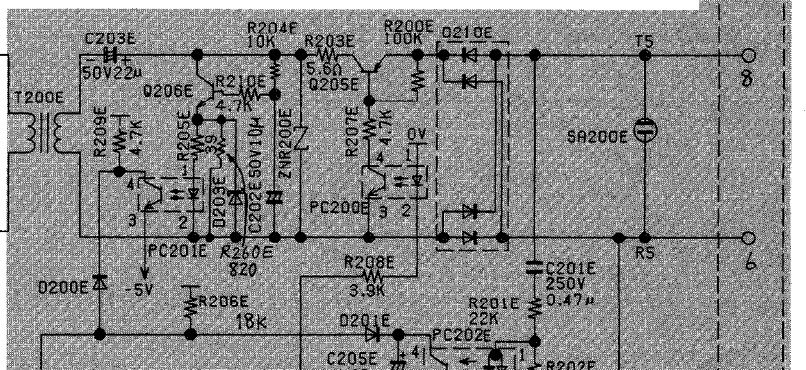
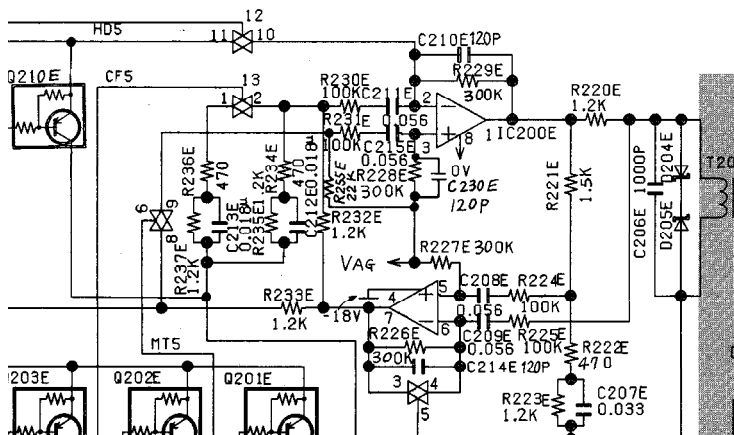
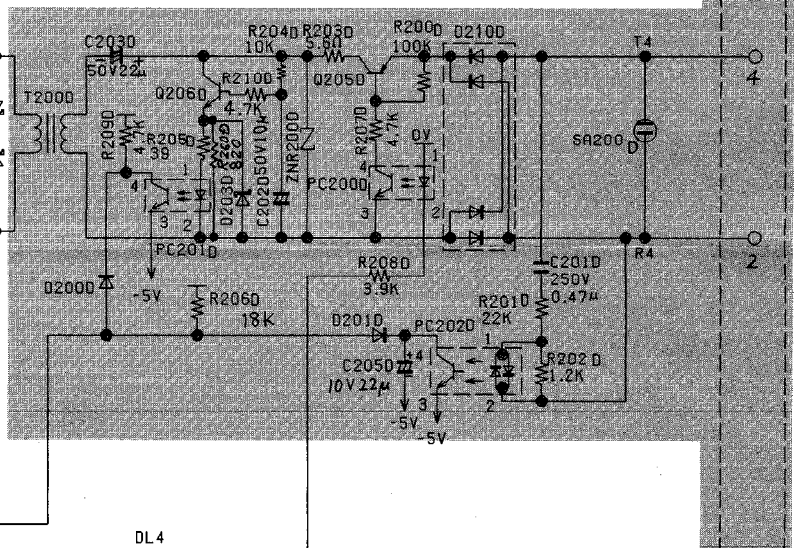
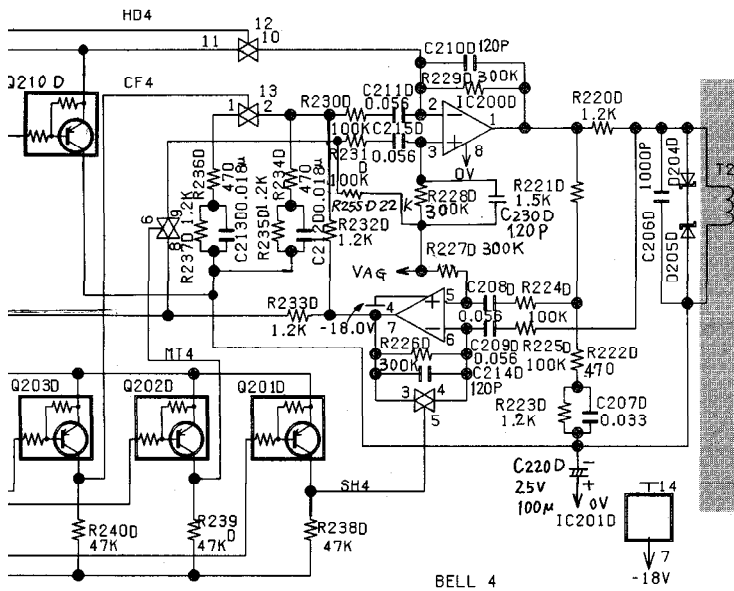
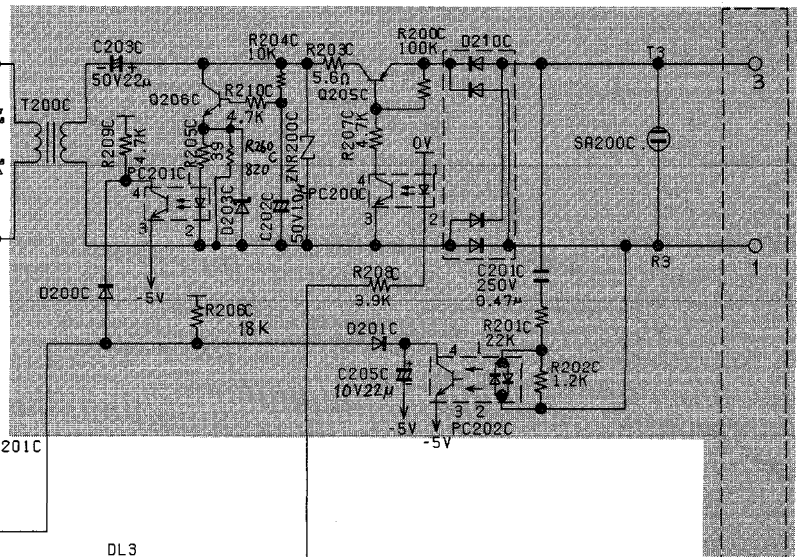
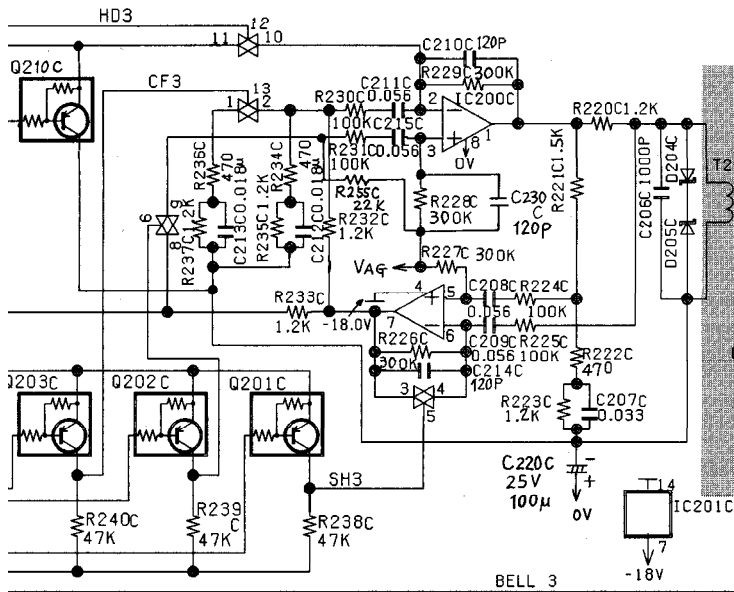


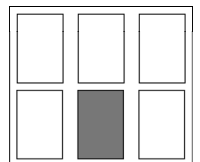
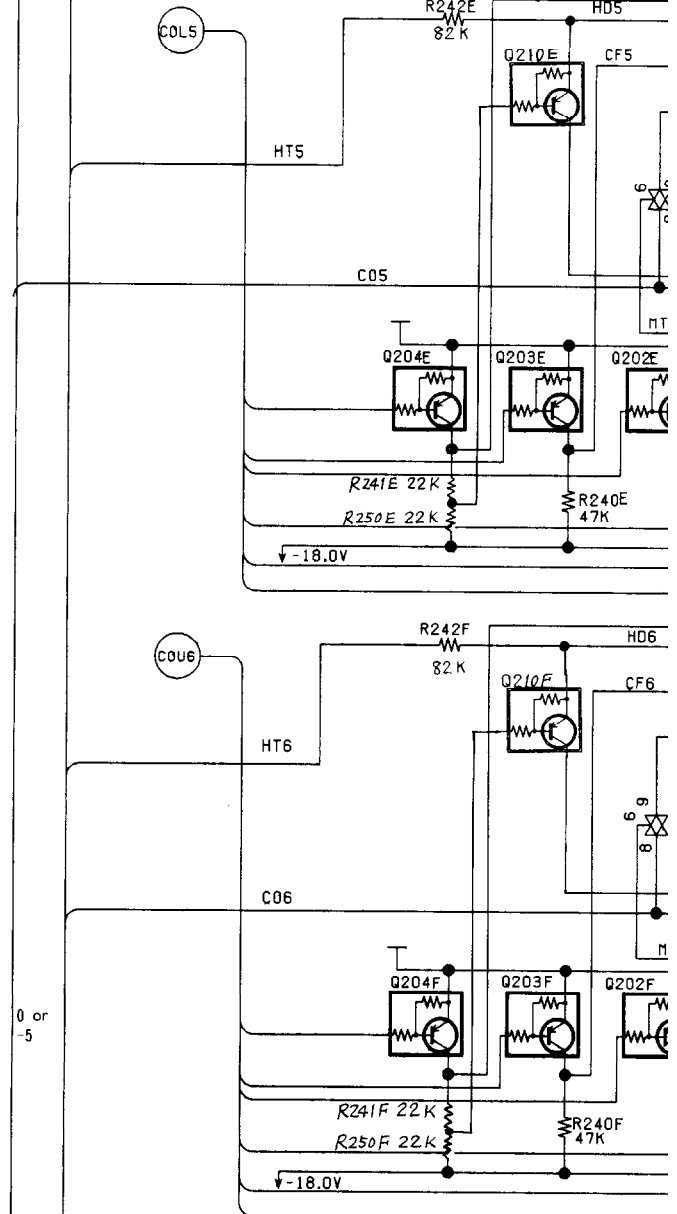
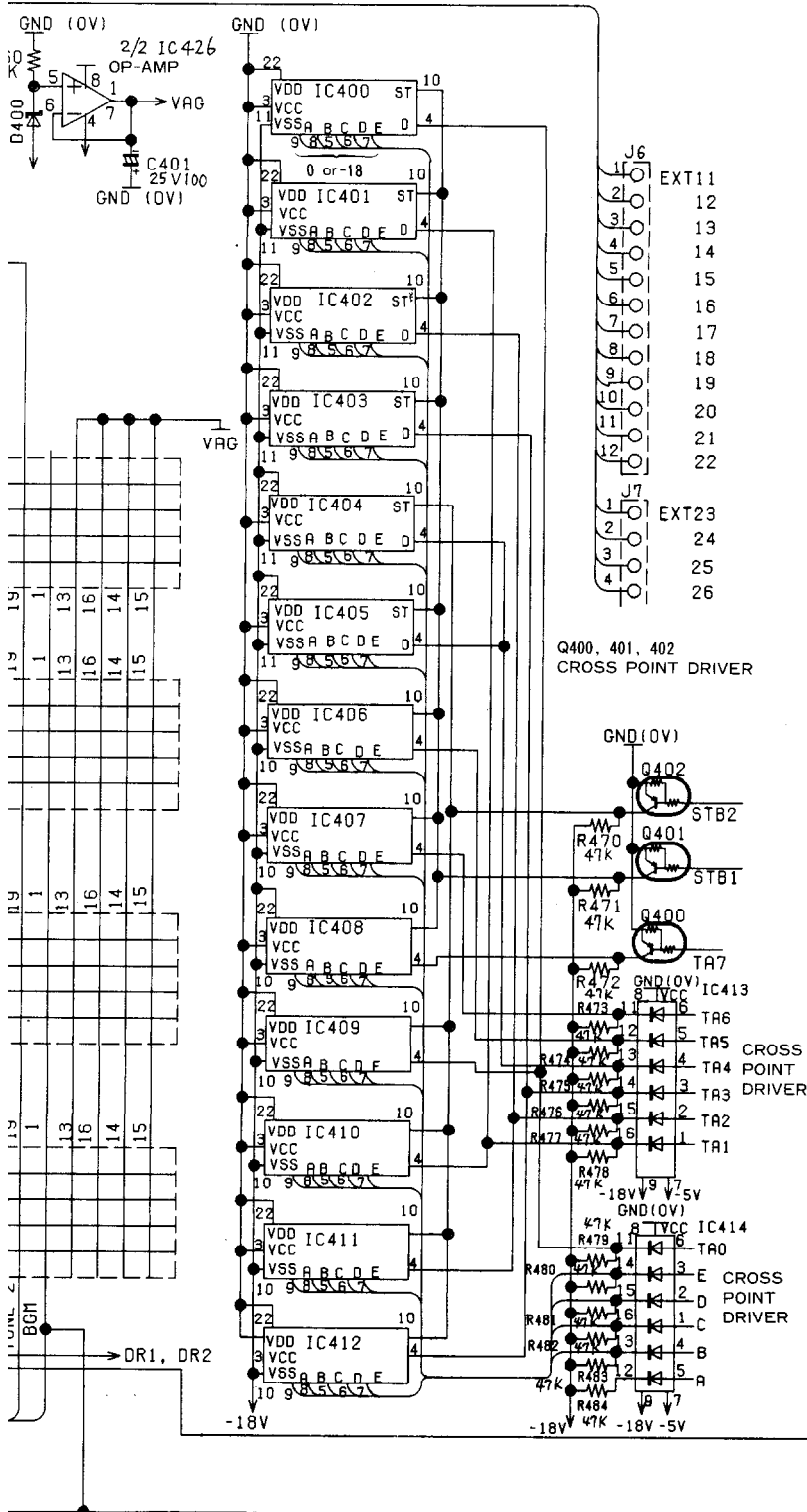
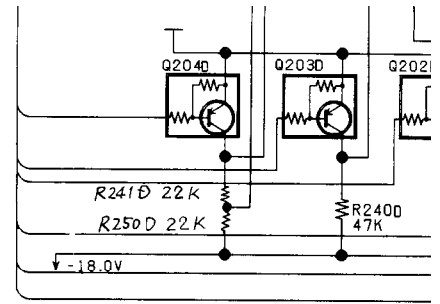
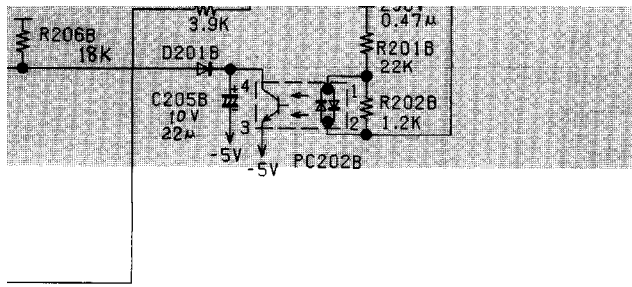


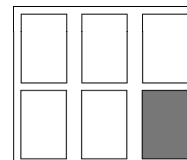
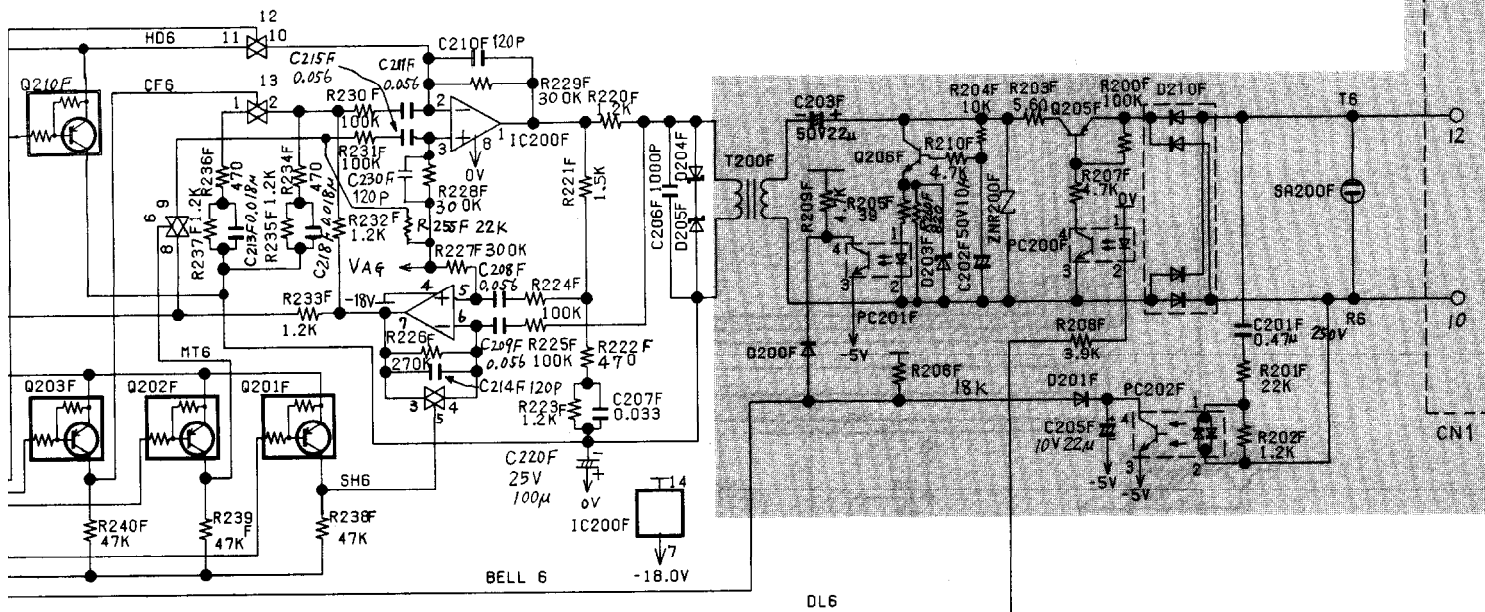
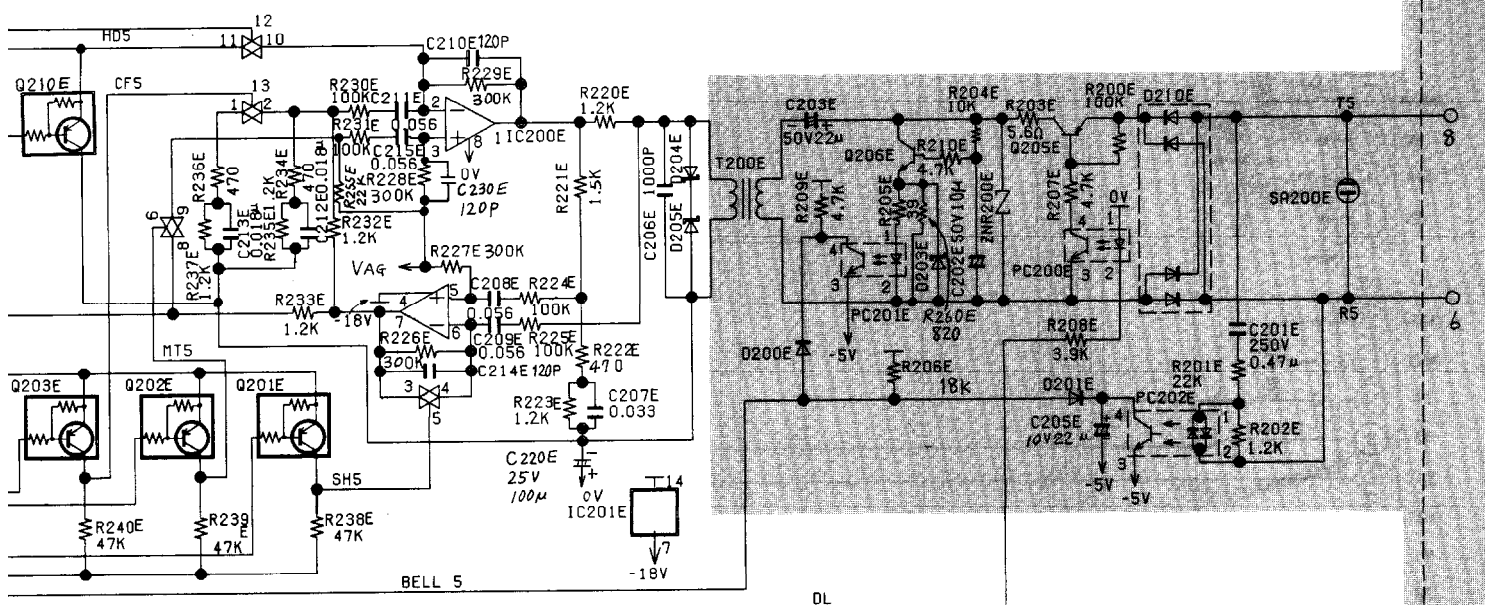
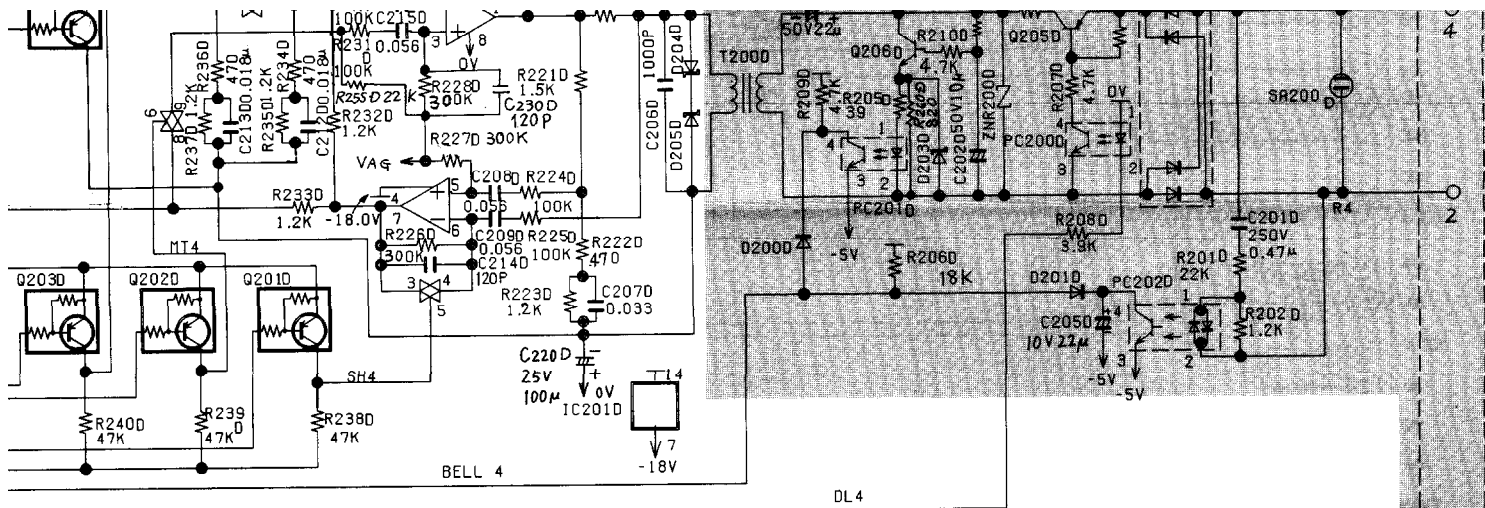
A horizontal number line with tick marks labeled 7, 8, 9, 10, 11, and 12.

MAIN-B BOARD

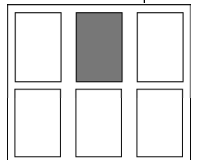


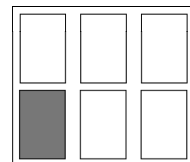
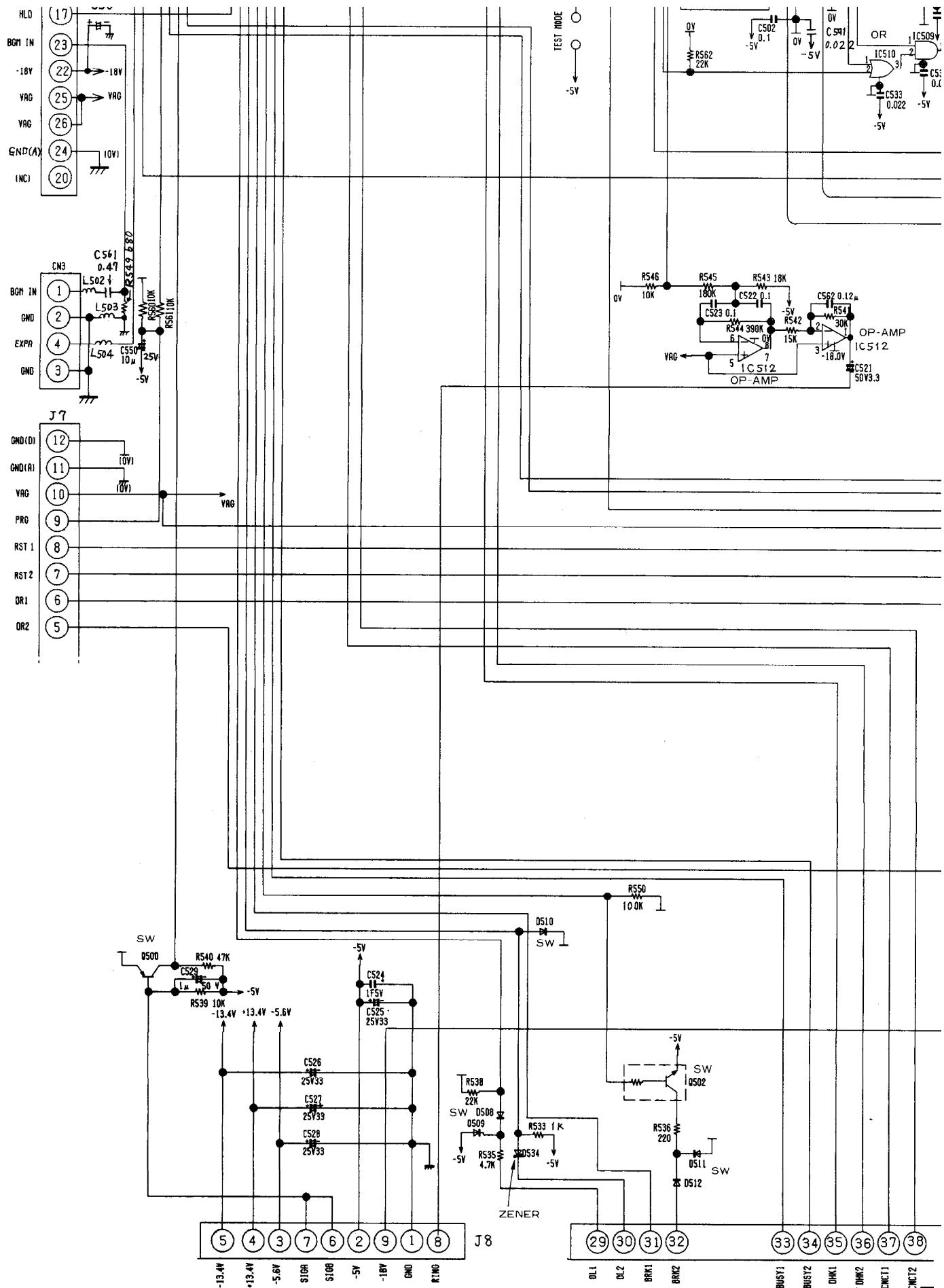


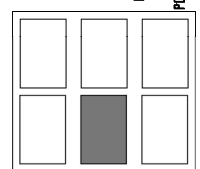
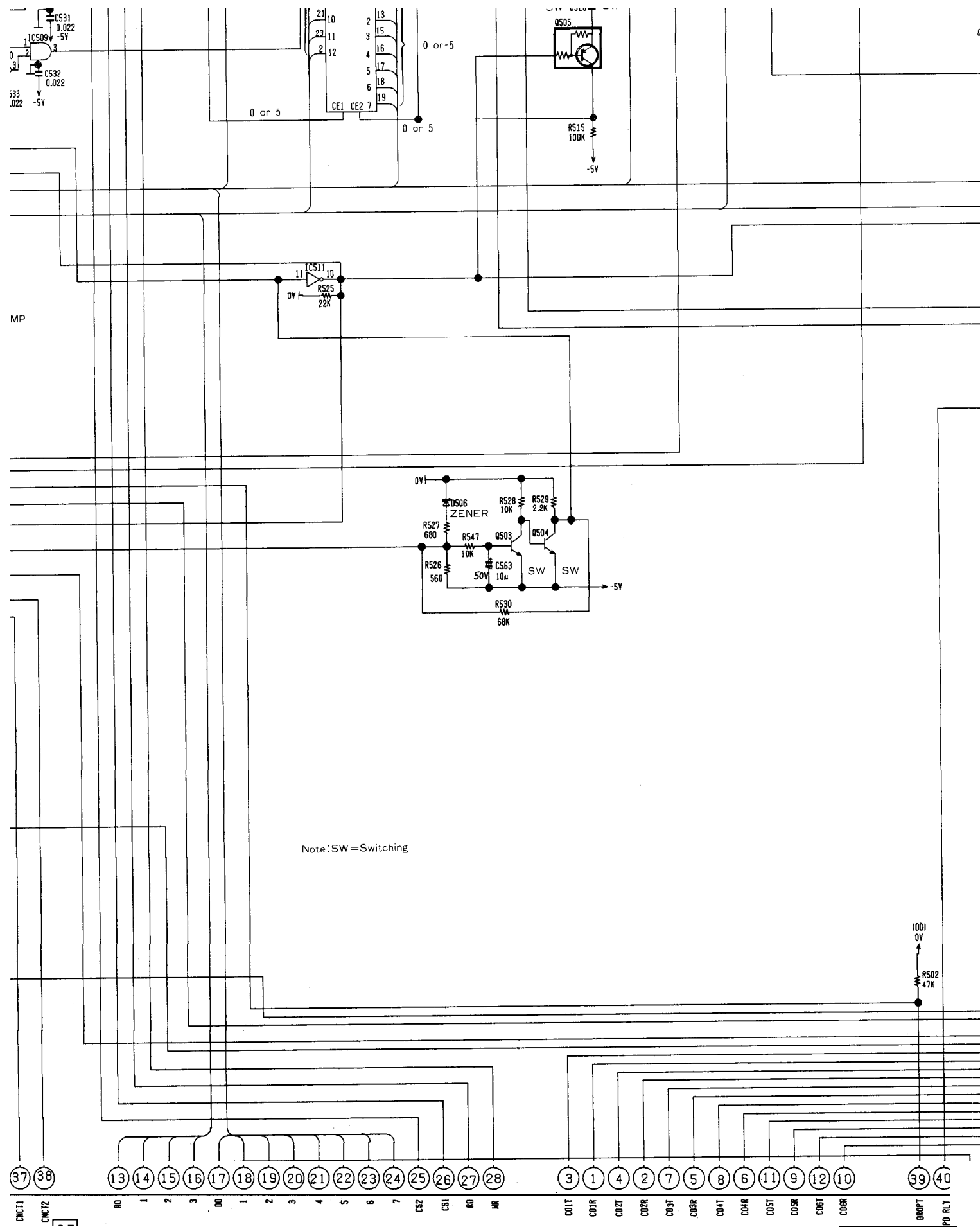


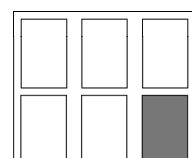


MAIN-B BOARD

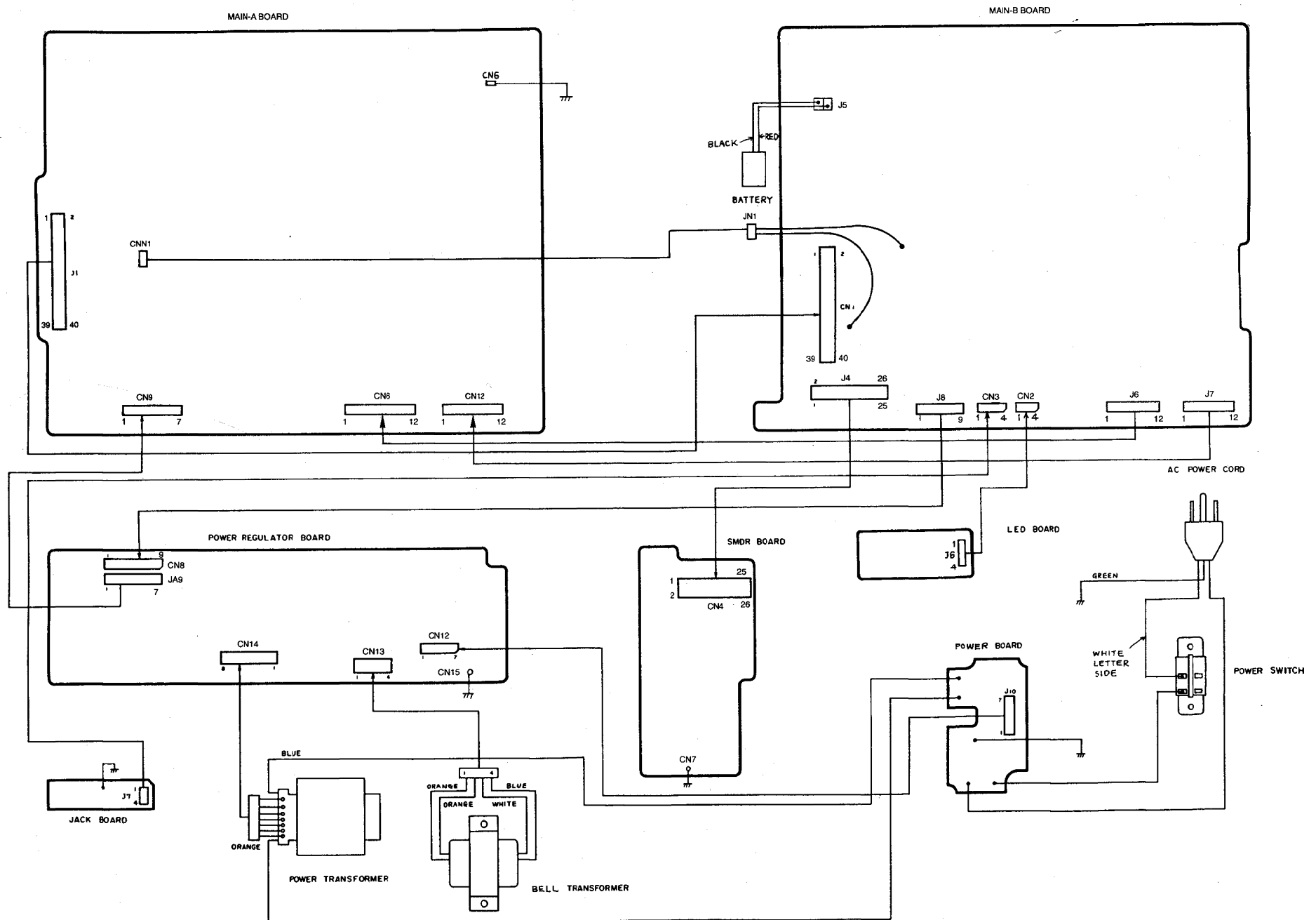






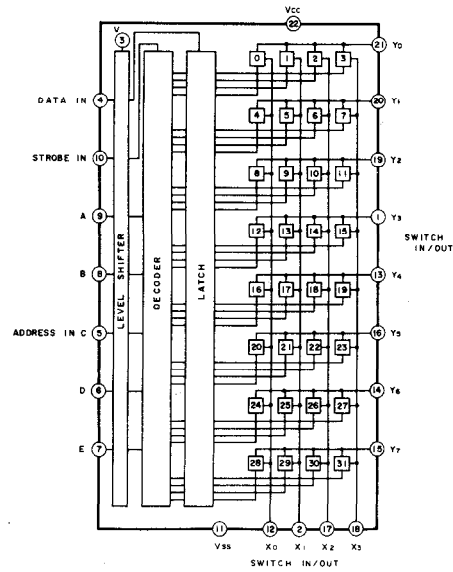


WIRING CONNECTION DIAGRAM

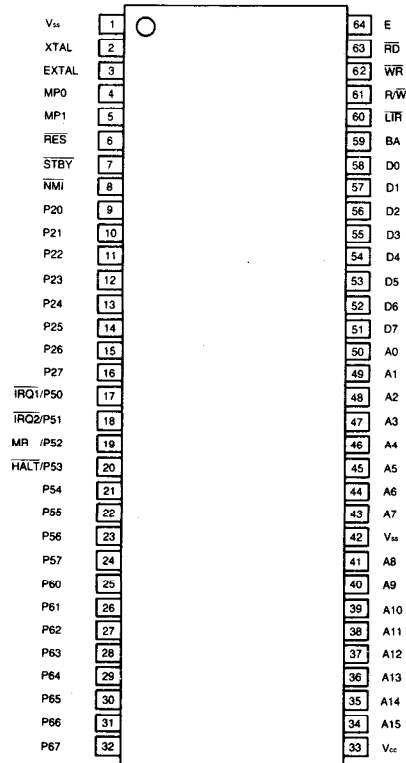


IC BLOCK DIAGRAM

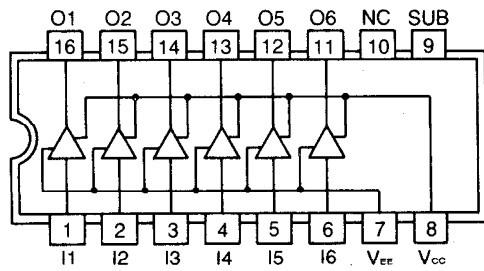
IC400~412 PQVIM402101P



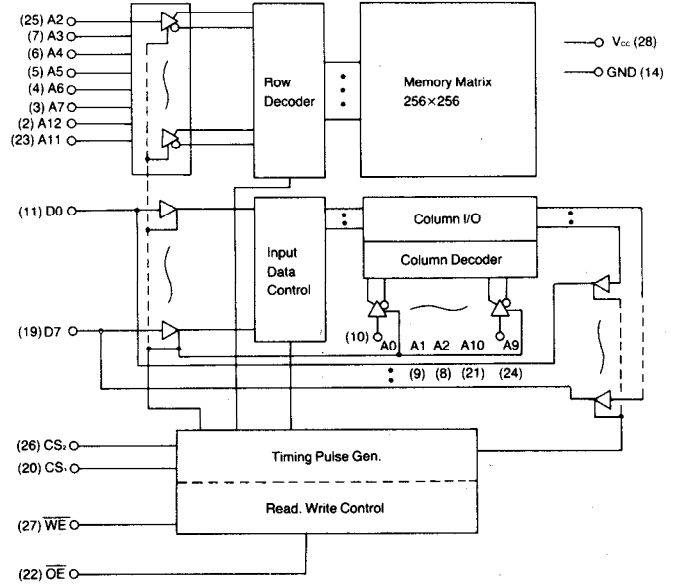
IC500 PQVIH63B03XP



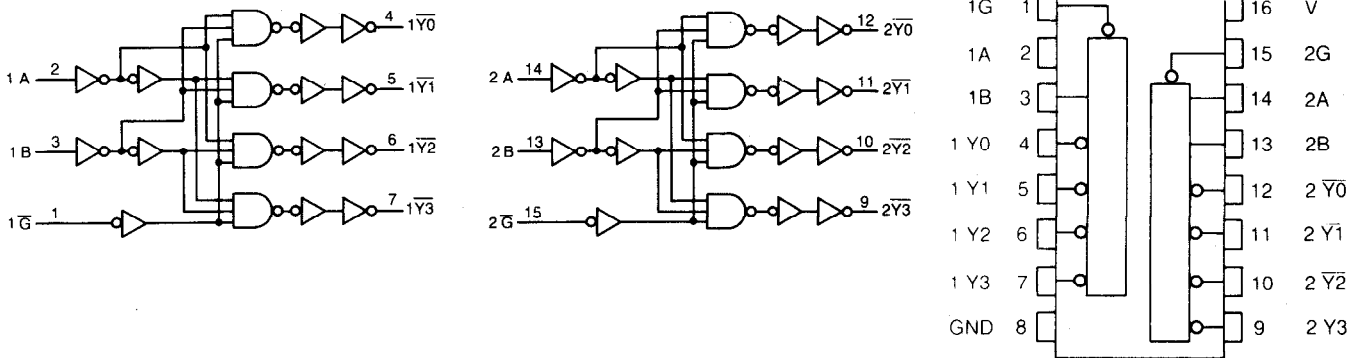
IC413, 414 PQVITD62706P



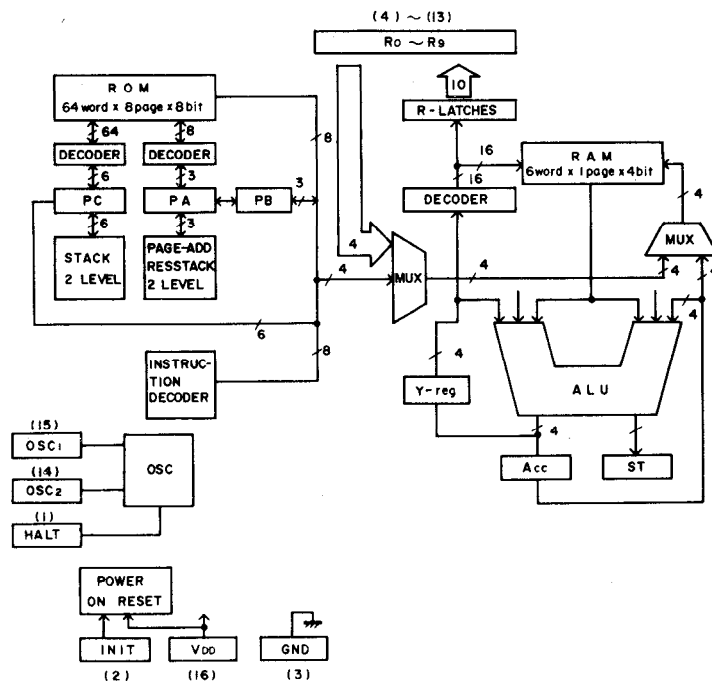
IC502, 503 PQVIHM6264LA



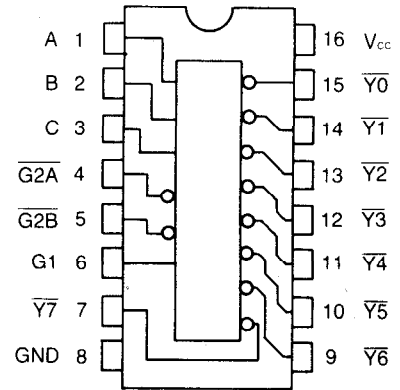
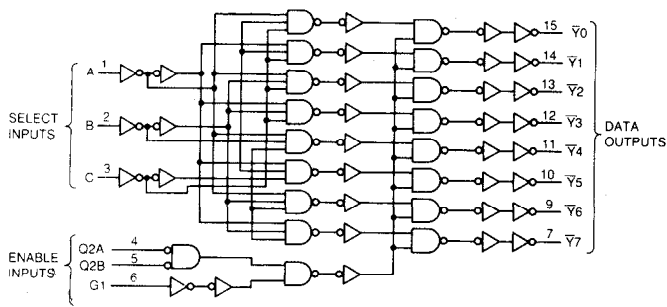
IC514 PQVITC7H139P



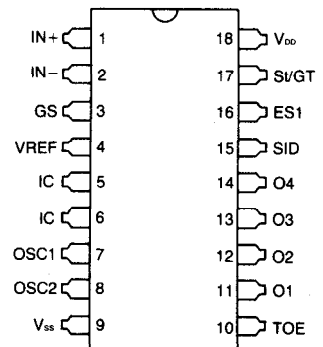
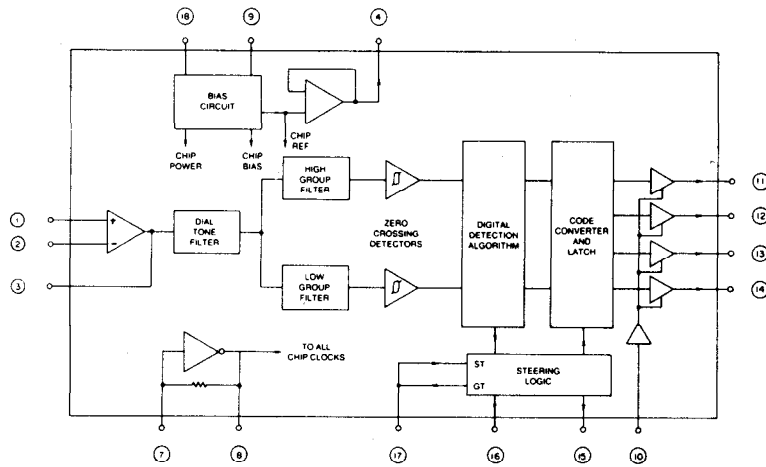
IC602 PQVIBU3140



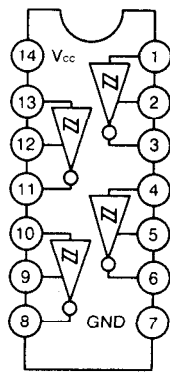
IC513 PQVITC7H138P



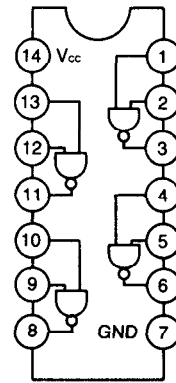
IC504, 505 PQVIMT8870BC



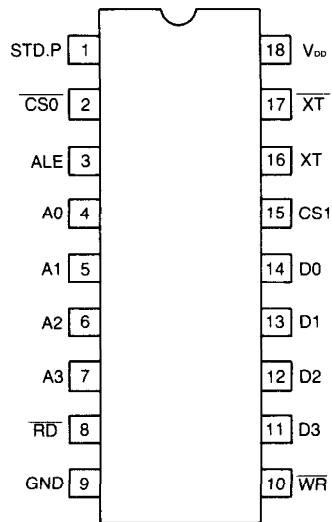
IC600 PQVIHD75189P



IC601 PQVIHD75188P

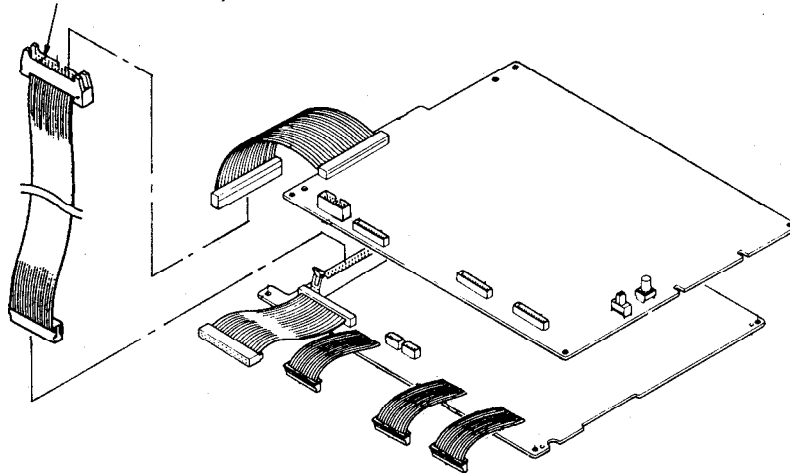


IC506 PQVIMS6242BS



EXTENSION CORD CONNECTING METHOD

Extension Cord
(Cord No. PQZZ40K1Z)



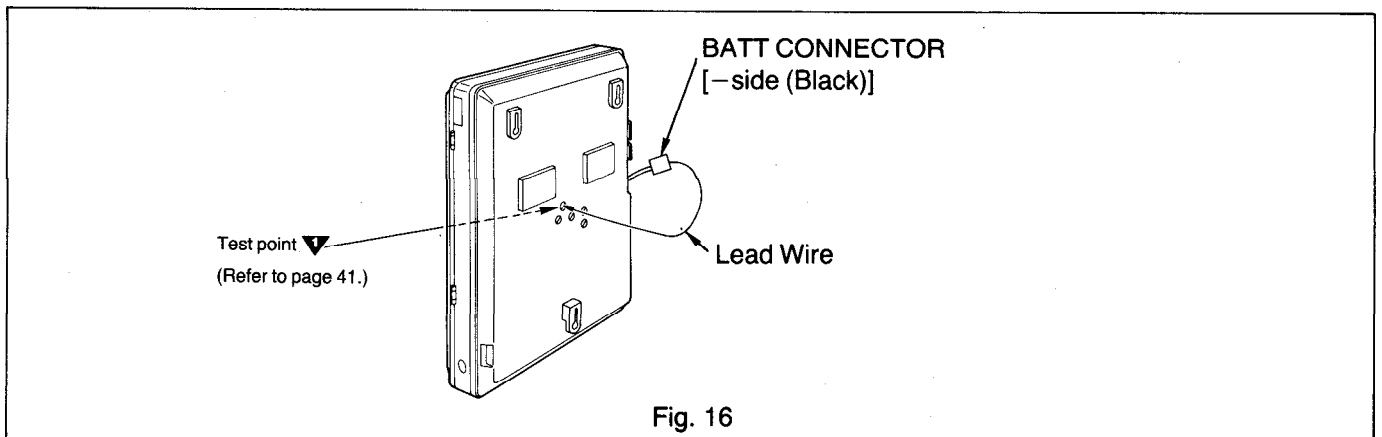
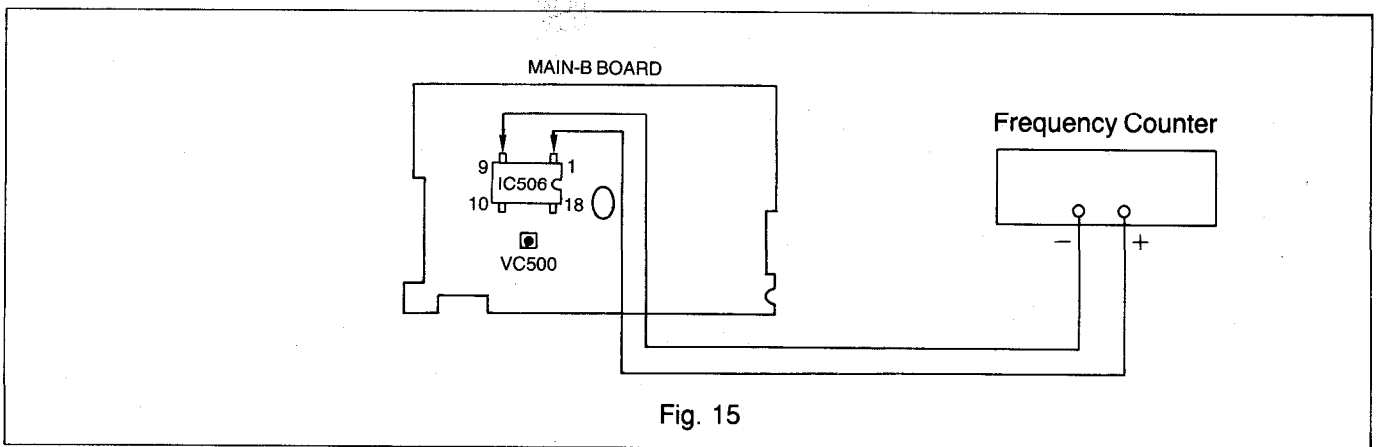
ADJUSTMENTS

■ OSCILLATION PERIOD ADJUSTMENT

Perform the following adjustment after replacing IC506 and VC500.

1. Connect the AC cord to the AC power source.
2. Set the power switch to ON.
3. Connect the lead wire. (See Fig. 16)
(After adjustment, remove the lead wire.)
4. Push the reset switch.
5. Connect the frequency counter. (See Fig. 15)
6. Set the frequency counter to PERIOD.
7. Adjust VC500 for a reading of () msec on the frequency counter.

Room temperature for adjusting (°C)	Period value (msec)	Room temperature for adjusting (°C)	Period value (msec)
14~14.9	15.624943 (± 0.00001)	20~20.9	15.624880 (± 0.00001)
15~15.9	15.624933 (± 0.00001)	21~21.9	15.624876 (± 0.00001)
16~16.9	15.624922 (± 0.00001)	22~27.9	15.624870 (± 0.00001)
17~17.9	15.624910 (± 0.00001)	28~28.9	15.624876 (± 0.00001)
18~18.9	15.624899 (± 0.00001)	29~29.9	15.624880 (± 0.00001)
19~19.9	15.624888 (± 0.00001)		



EXPLODED VIEW

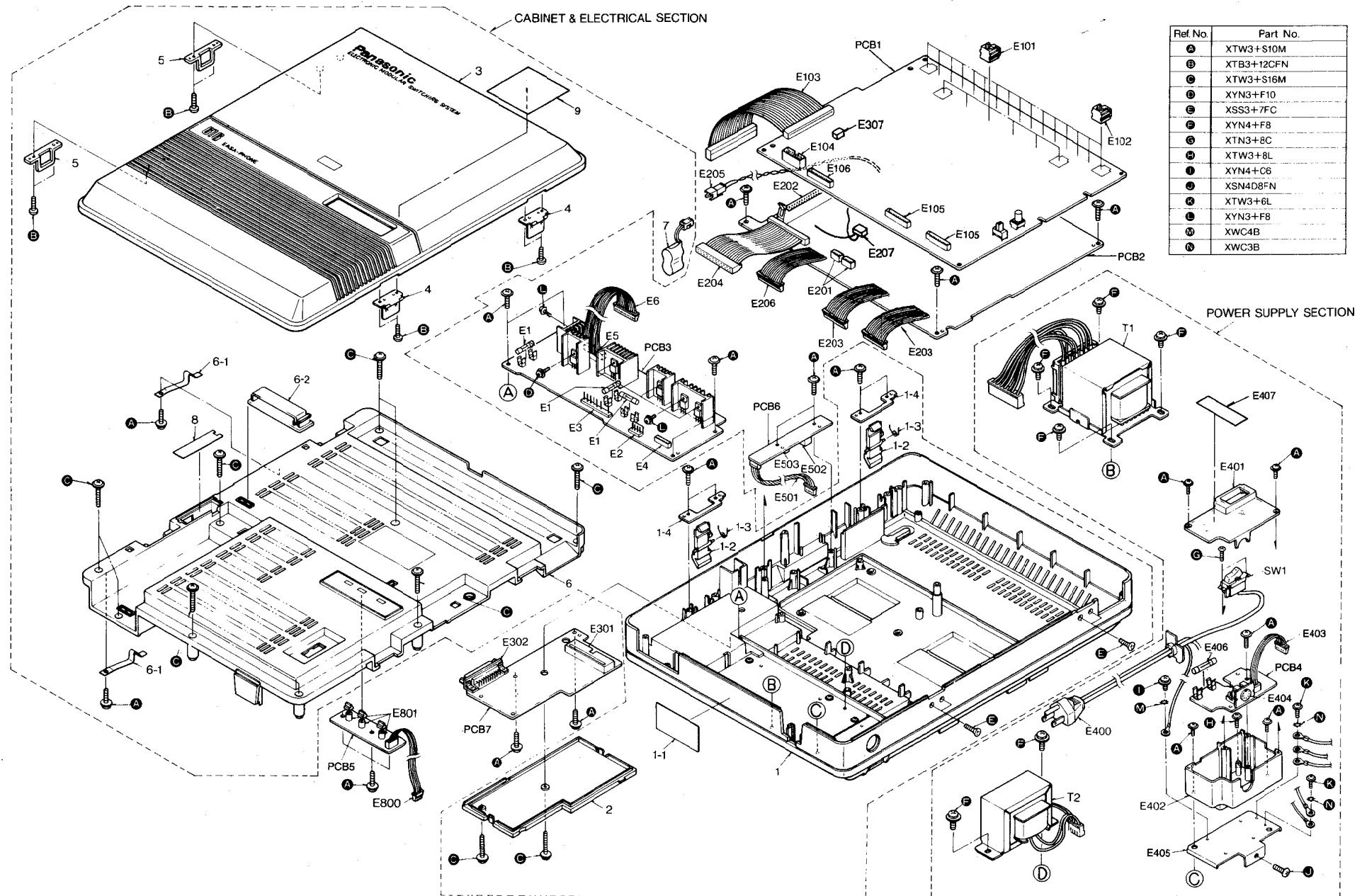


Fig. 17

ACCESSORIES & PACKING MATERIALS

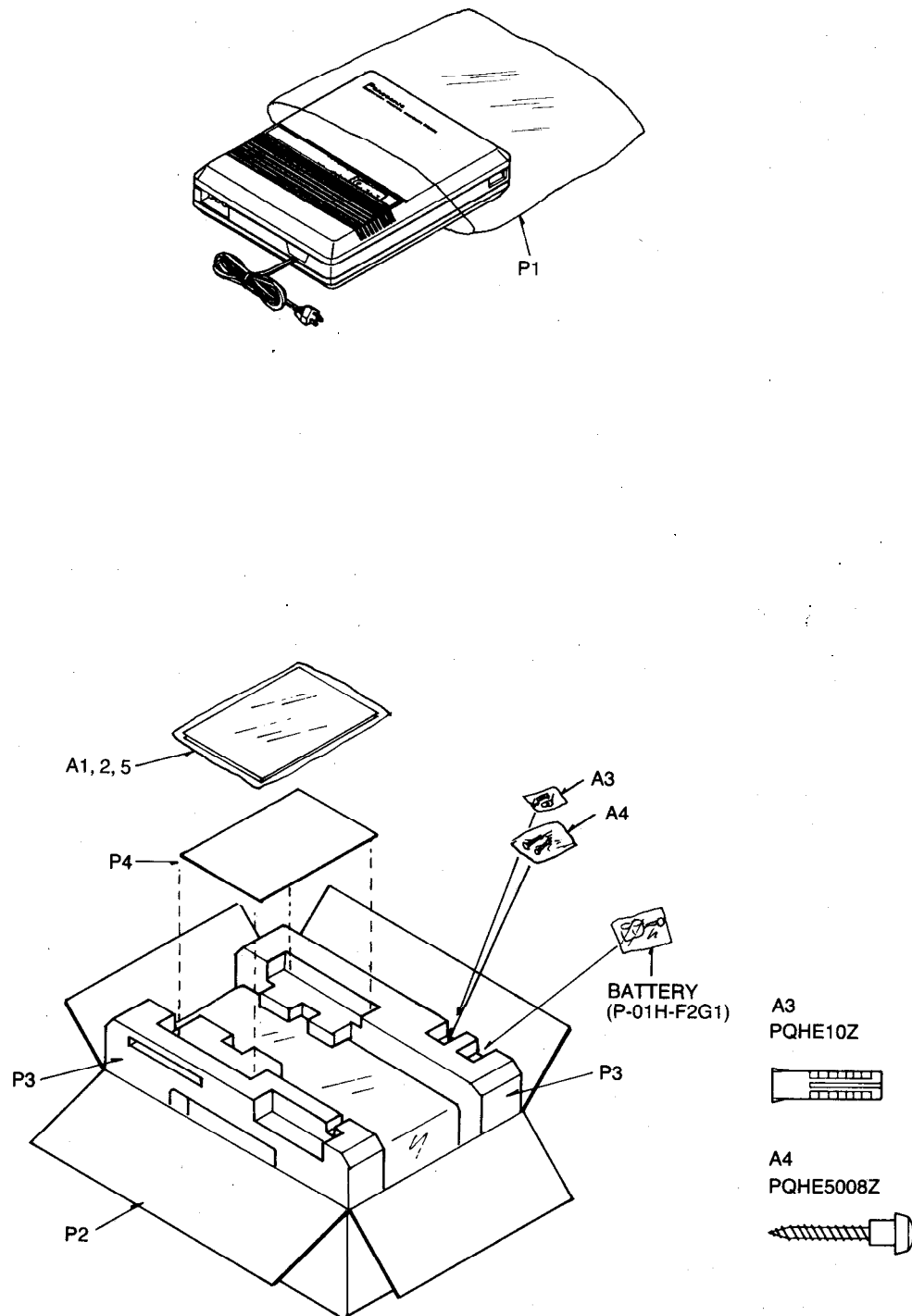


Fig. 18

REPLACEMENT PARTS LIST

Notes:

Model KX-T61610-1

- Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
- Important safety notice.
Components identified by the Δ mark special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS
Unless otherwise specified.
All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μ F) P= 0.001 μ F
*Type & Wattage of Resistor
Type

ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse
PQ4R:Chip	ERO:Metal Film	ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W
---------------	---------------	---------------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,PQCBP,PQVP : Ceramic
EQQS:Styrol	ECQM,ECQV,ECQE,ECQU,ECQB : Polyester
PQCBX,ECUV:Chip	ECEA,ECSZ,ECOS : Electrolytic
ECMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG	ECSZ Type	Others		
ECQV Type					
1H: 50V	05: 50V	OF:3.15V	OJ :6.3V	1V :35V	
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V	
2E:250V	2:200V	1V:35V	1C :16V	1J :63V	
2H:500V		OJ:6.3V	1E,25:25V	2A :100V	

Ref. No.	Part No.	Part Name & Description	Pcs
CABINET & ELECTRICAL PARTS			
1	PQYMT61610M1	Rear Cabinet Assembly	1
1-1	PQGT384Z	Name Plate	1
1-2	PQHR9120Z8	Hook	2
1-3	PQUS91Z	Spring, Hook	2
1-4	PQUL51Z	Bracket, Hook	2
2	PQKE31Z8	Cabinet Door	1
3	PQYF1T61610M	Front Cabinet Assembly	1
4	PQBH2Z	Hinge	2
5	PQHR9121Z8	Hinge	2
6	PQYF2T61610M	Inside Cover Assembly	1
6-1	PQUS102Z	Leaf Spring	2
6-2	PQHR5044Z	Cord Holder	1
7	P-01H-F2G1	Battery	1
8	PQUV50Z	Battery Cover	1
9	PQQT4134Z	Label, Front Cabinet	1
ACCESSORIES AND PACKING MATERIALS			
A1	PQQX5341Z	Installation Manual	1
A2	PQQX5367Z	User Guide	1
A3	PQHE10Z	Mounting Bracket (Curl Plug)	3
A4	PQHE5008Z	Mounting Bracket (Screw)	3
A5	PQQX5402Z	User Guide (for KX-T30830/30820)	1
P1	XZB45X06A05	Protection Cover	1
P2	PQPK431Y	Packing Case	1
P3	PQPN9036Z	Pad Complete (L,R Side)	1
P4	PQPN668Z	Pad	1

Ref. No.	Part No.	Part Name & Description	Pcs
MAIN-A BOARD PARTS			
PCB1	PQWP161610M1	Main-A P.C. Board Assy (NLA)	1
IC300,301	PQVI671152F	(ICs) IC	2
Q300A-300P	2SB644	(TRANSISTORS) Transistor (Si)	16
Q301A-301P	2SD639	Transistor (Si)	
Q302A-302P	PQVTDTC114Y	Transistor (Si)	S 16
Q303A-303P	DTA143A	Transistor (Si)	S 16
Q304A-304P	2SC2021	Transistor (Si)	24
,305I-305P			
Q305A-305H	2SA937	Transistor (Si)	9
,307			
Q306	2SB1015	Transistor (Si)	1
Q308	2SD1406	Transistor (Si)	1
Q309	DTC124XA	Transistor (Si)	1
Q310,311, ,312	DTA124EA	Transistor (Si)	3
D300I-300P	1SS131	(DIODES) Diode (Si)	162
,301A-301P	1SS131	Diode (Si)	
,302A-302P			
,303A-303P			
,304A-304P			
,305A-305P			
,309A-309P			
,310A-310P			
,311A-311P			
,312A-312P			
,313-322			
D306A-306P	MA4047	Diode (Si)	16
,307A-307P			
D308A-308P	MA4030	Diode (Si)	16
SA30A-30F	PQVDSAE310F1	(VARISTORS) Varistor (Surge Absorber)	S 12
,31A-31F			
ZNR30A-30P	ERZC03DK241	Varistor	32
,31A-31P			1
PC300A-PC300P	PQVITLP521	(PHOTO ELECTRIC TRANSDUCER) Photo Coupler	16
			1
Z300,301 ,303	EXBP88222K	(COMPONENTS COMBINATIONS) Resistor Array	S 3
Z302	PQRS8B8102J	Resistor Array	1
Z304,305	EXBP88473K	Resistor Array	S 2
L30A-30F, ,31A-31F	PQLQZK101K	(COILS) Choke Coil	12
L32A-32F, ,33A-33F	PQLQZM100K	Choke Coil	12
L300A-300P ,301A-301P ,302A-302P ,303A-303P	PQLQZM2R2M	Choke Coil	64

Ref. No.	Part No.	Part Name & Description	Pcs
T300A-300P	ETA14Y85AY	(TRANSFORMERS) Interface Transformer	16
T301A-301P	ETE13K38AY	Pulse Transformer	16
X300	PQVCX4000N8Z	(CRYSTAL OSCILLATOR) Crystal Oscillator	1
SW2	PQSH1A12Z	(SWITCHES) Switch, Reset	1
SW3	PQSS2A20Z	Switch, System Program	1
RLY10A-10F	PQSL49Z	(RELAYS) Relay	6
RLY30A-30P	PQSL41Z	Relay	16
C300A-300P	ECEA1HU3R3	(CAPACITORS) 3.3	S 32
,301A-301P			
C302A-302P	ECEA1HU2R2	2.2	16
C303A-303P	ECKD1H472MD	0.0047	32
,304A-304P			
C305A-305P	ECEA1HUR47	0.47	16
C306A-306P	ECEA1HU010	1	32
,307A-307P			
C309, 313	ECCD1H221J	220P	2
C310,311	ECCD1H470KC	47P	2
C314,315	ECEA1EU101	100	2
C317,322	ECEA1VU101	100	2
C318-321	ECEA1VU330	33	S 4
C330A-330F	ECKDKC222KB	0.0022	6
C340,341	ECEA1VSS222	2200	2
C360,363	ECQV1H104JZ	0.1	2
C361,362	ECKD1H223MD	0.022	2
C365A-365P	ECUV1H224ZF	0.22	16
C370	ECEA1CU102	1000	1
R300A-300P	PQ4R10XJ220	(RESISTORS) 22	32
,301A-301P			
R302A-302P	PQ4R10XJ682	6.8k	32
,303A-303P			
R304A-304P	PQRD2TJ102	1k	S 16
R305A-305P	PQ4R10XJ470	47	16
R306A-306P	PQ4R10XJ154	150k	16
R307A-307P	PQ4R10XJ103	10k	16
R308A-308P	PQ4R10XJ561	560	16
R309-312	ERD16TJ154	150k	4
R313	ERD16TJ105	1M	1
R314,315	ERD16TJ103	10k	2
R316	ERD16TJ104	100k	1
R317	ERD16TJ393	39k	1
R318	ERD16TJ821	820	1
R319	ERD16TJ181	180	1
R320, 370,	ERD16TJ101	100	18
,321A-321P			
R322A-322P	PQ4R10XJ3R3	3.3	16
R323A-323P	PQ4R10XJ472	4.7k	16
R324A-324P	PQ4R10XJ121	120	32
,325A-325P			
R326A-326P	PQ4R10XJ222	2.2k	16
R360A-360P	PQ4R10XJ820	82	16
R375	ERD16TJ220	22	1

Ref. No.	Part No.	Part Name & Description	Pcs
E301	PQJJ1TA3Y	(OTHERS) Jack, CO (MJ1A-MJ1F)	6
E302	PQJJ1TB16Z	Jack, EXT (MJ2A-MJ2P)	16
E303	PQJS40R30Z	Connector Socket, 40P (J1)	1
E304	PQJP14D49Z	Connector Plug, 14P (CN10)	1
E305	PQJP12D68Z	Connector Plug, 12P (CN6,7)	2
E306	PQJP7D68Z	Connector Plug, 7P (CN9)	1
E307	PQJP2D72Z	Connector Plug, 2P (CNN1)	1
MAIN-B BOARD PARTS			
PCB2	PQWP261610M1	Main-B P.C.Board Ass'y (NLA)	1
IC200A-IC200F	PQVINJM4558M	(ICs) IC	6
IC201A-IC201F	PQVITC4066BF	IC	6
IC400-412	PQVIM402101P	IC	13
IC413,414	PQVITD62706P	IC	2
IC426,512	PQVINJM4558D	IC	2
IC500	PQVIH63B03XP	IC	1
IC501	PQWIT61610M2	IC	1
IC502,503	PQVIHM6264LA	IC	2
IC504,505	PQVIMT8870BC	IC	S 2
IC506	PQVIMS6242BS	IC	1
IC507	PQVILR4089	IC	1
IC508	PQVI63HB110	IC	1
IC509	PQVITC7H08P	IC	1
IC510	PQVITC7H32P	IC	1
IC511	PQVITC7H04P	IC	S 1
IC513	PQVITC7H138P	IC	S 1
IC514	PQVITC7H139P	IC	1
Q201A-201F	DTA124XA	(TRANSISTORS) Transistor (Si)	27
,202A-202F			
,203A-203F			
,204A-204F			
,400,401,402			
Q205A-205F	2SA1626	Transistor (Si)	△ 6
Q206A-206F	2SC2590	Transistor (Si)	△ 6
Q210A-210F	DTA144A	Transistor (Si)	S 7
,505			
Q500	2SA937	Transistor (Si)	1
Q502	PQVTDTC114Y	Transistor (Si)	S 1
Q503,504	2SC2021	Transistor (Si)	2
D200A-200F	1SS131	(DIODES) Diode (Si)	△ 24
,201A-201F			
,500,501			
,503,504			
,505,508-			
,512,520			
,521			
D203A-203F	PQVDHVS2B1	Diode (Si)	△ 6
D204A-204F	MA4047	Diode (Si)	12
,205A-205F			
D210A-210F	PQVDS1YB40F1	Diode (Si)	△ 6
D400	MA4091	Diode (Si)	1
D502	MA4062	Diode (Si)	1
D506	MA4036	Diode (Si)	1
D534	PQVDMTZ15A	Diode (Si)	1
VD500	PQVD1SV124	Diode (Si)	1

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Value	Pcs
ZNR200A- ZNR200F	ERZC07DK820	(VARISTORS) Varistor	6	C502,505- ,509,511 ,513,517 ,522,523 ,530,590	ECQV1H104JZ	0.1	13
T200A-200F	ETA14Y85AY	(TRANSFORMERS) Interface Transformer	6	C503,504 ,510,512 ,531,532 ,533,591	ECKD1H223MD	0.022	8
Z500,501 ,502	EXBP88473K	(COMPONENT COMBINATIONS) Resistor Array	3	C514 C515 C516,519 C518 C521 C524 C525-528 ,551	ECQM1H472JV ECEA1AU470 ECKD1H103MD ECEA0JSS222 ECEA1HU3R3 EECW0HS105Z ECEA1VU330	0.0047 47 0.01 2200 3.3 1 33	1 1 2 1 1 1 5
TH500 TH501	PQRRTS203U PQRRTS104U	(THERMISTORS) Thermistor Thermistor	1 1	C529 C550 C561 C562	ECEA1HU010 ECEA1EU100 ECQV1H474JZ ECQV1H124JZ	1 10 0.47 0.12	1 1 1 1
X500 X501 X502	PQVCX7600N5Z PQVCX3579H5R PQVCL3276N4Z	(CRYSTAL OSCILLATORS) Crystal Oscillator Crystal Oscillator Crystal Oscillator	1 1 1				
SA200A- SA200F	PQVDSAE310F1	(VARISTORS) Varistor (Surage Absorber)	6	R200A-200F ,510,512 ,515,518 ,550	ERD16TJ104	100k	11
VC500	PQCVTZB30B	(VARIABLE CAPACITOR) Trimmer	1	R201A-201F R202A-202F ,220A-220F ,223A-223F ,232A-232F ,233A-233F ,235A-235F ,237A-237F	PQRD12VJ223 ERD16TJ122	22k 1.2k	6 43
L500-504 L520	PQLQZM1R5M PQLQZM2R2M	(COILS) Choke Coil Choke Coil	5 1	R203A-203F R204A-204F ,524,528 ,539,546 ,547,560 ,561	ERD16TJ5R6 ERD16TJ103	5.6 10k	6 13
PC200A- PC200F PC201A- PC201F PC202A- PC202F	PQVIPC851K PQVITLP521 PQVIPC814K	(PHOTO ELECTRIC TRANSDUCERS) Photo Coupler Photo Coupler Photo Coupler	6 6 6	R205A-205F R206A-206F R207A-207F ,209A-209F ,210A-210F ,519,535	ERD25TJ390 ERD10TLJ183 ERD16TJ472	39 18k 4.7k	6 6 20
C201A-201F C202A-202F ,563 C203A-203F C205A-205F C206A-206F C207A-207F C208A-208F ,209A-209F ,211A-211F ,215A-215F C210A-210F ,214A-214F C212A-212F ,213A-213F ,400 C220A-220F ,401 C230A-230F C405-408 C500,501	ECQE2E474MZ ECEA1HU100 ,563 ECEA1HU220 ECEA1AU220 ECKD1H102KB ECQV1H333JZ ECQV1H563JZ ,209A-209F ,211A-211F ,215A-215F ECCD1H121KC ECQM1H183JZ ,213A-213F ,400 ECEA1EU101 ECUV1H121JC ECQV1H273JZ ECCD1H150JC	(CAPACITORS) 0.47 10 22 22 1000P 0.033 0.056 120P 0.018 100 120P 0.027 15P	6 7 6 6 6 6 24 12 13 6 7 6 4 2	R208A-208F R221A-221F R222A-222F ,234A-234F ,236A-236F R224A-224F ,225A-225F ,230A-230F ,231A-231F R226A-226F ,227A-227F ,228A-228F ,229A-229F R238A-238F ,239A-239F ,240A-240F ,470-484 ,500-508 ,540,563 ,564	ERD16TJ392 ERD16TJ152 ERD16TJ471 ER016CKF1003 ER016CKF3003 ERD16TJ473	3.9k 1.5k 470 100k 300k 47k	6 6 18 24 24 45

Ref. No.	Part No.	Part Name & Description	Pcs
R241A-241F .250A-250F .255A-255F .525,538 .562,565	ERD16TJ223	22k	22
R242A-242F	ERD16TJ823	82k	6
R260A-260F	PQ4R18XJ821	820	6
R400-407	ER016CKF1151	1.15k	8
R408-423	ER016CKF49R9	49.9	16
R424-439	ER016CKF1101	1.1k	16
R456-459	ER016CKF6491	6.49k	4
R460,461	ERD16TJ182	1.8k	2
R509,511	ERD16TJ333	33k	2
R513,514	ERD16TJ334	330k	2
R516	ERD16TJ154	150k	1
R517	ERD16TJ105	1M	1
R520	ERD16TJ821	820	1
R521,522 .523	ERD16TJ391	390	3
R526	ERD16TJ561	560	1
R527,549	ERD16TJ681	680	2
R529	ERD16TJ222	2.2k	1
R530	ERD16TJ683	68k	1
R533	ERD16TJ102	1k	1
R536	ERD16TJ221	220	1
R541	ER016CKF3002	30k	1
R542	ERD16TJ153	15k	1
R543	ERD16TJ183	18k	1
R544	ERD16TJ394	390k	1
R545	ERD16TJ184	180k	1
R580,581	ERD16TJ151	150	2
R582	ERD16TJ101	100	1
(OTHERS)			
E201	PQJP4D14Z	Connector Plug, 4P (CN2,3)	2
E202	PQJP40D53Z	Connector Plug, 40P (CN1)	1
E203	PQJS12L31Z	Connector Socket, 12P (J6,7)	2
E204	PQJS26R30Z	Connector Socket, 26P (J4)	1
E205	PQJS2L26Y	Connector Socket, 2P (J5)	1
E206	PQJS9L31Z	Connector Socket, 9P (J8)	1
E207	PQJS2L55Z	Connector Socket, 2P (JN1)	1
POWER REGULATOR BOARD PARTS			
PCB3	PQWP361610M1	Power P.C.Board Ass'y (NLA)	1
(ICs)			
IC1	PQVITA7924	IC	1
IC2	PQVIPC79M18F	IC	1
IC3	PQVITA7812AP	IC	1
IC4	AN7912T	IC	1
(TRANSISTORS)			
Q2	2SA937	Transistor (Si)	1
Q3	2SB834	Transistor (Si)	1
Q4	2SC2673	Transistor (Si)	1
Q5	2SA881	Transistor (Si)	1
Q6	2SB1015	Transistor (Si)	1
Q7	2SD1406	Transistor (Si)	1
(DIODES)			
D1,3	PQVD2B4B41	Diode (Si)	2
D2	PQVD3B4B41	Diode (Si)	1
D10,12,13 .21,22	1SR35-200	Diode (Si)	5
D14	MA4110	Diode (Si)	1

Ref. No.	Part No.	Part Name & Description	Pcs
D15-18 .23-29	1SS131	Diode (Si)	11
D19	MA1056	Diode (Si)	1
D20	PQVDEK03	Diode (Si)	1
(COMPONENT COMBINATION)			
CA1	PQXF6WB07	Capacitor Array	1
(CAPACITORS)			
C1	ECET50S103SW	10000	1
C2	ECET35S472SW	4700	1
C3	ECEA1EU331	330	1
C4,6	ECET35S682SW	6800	2
C5,7	ECEA1EU331	330	2
C8	ECET35S222SW	2200	1
C9	ECEA1AU221	220	1
C10	ECKD1H103MD	0.01	1
C11	ECEA1AHA101	100	1
C12	ECKD1H102KB	0.001	1
C13	ECEA1HU2R2	2.2	1
(RESISTORS)			
R12	ERD16TJ682	6.8k	1
R13	ERD16TJ331	330	1
R14	ERDS1TJ101	100	1
R15,16	ERD16TJ823	82k	2
R17,18	ERD16TJ103	10k	2
R19,20	ERDS1TJ151	150	2
R21,22	PQRD1VJ1R0	1	2
R23,24	ERDS1TJ181	180	2
R30	ERD25TJ153	15k	1
(OTHERS)			
E1	XBA1C20NU100	Fuse (F1-F3)	3
E2	PQJP4D16Z	Connector Plug, 4P (CN13)	1
E3	PQJP7D19Z	Connector Plug, 7P (CN14)	1
E4	PQJP7G3Z	Connector Plug, 7P (CN12)	1
E5	PQJP9D68Z	Connector Plug, 9P (CN8)	1
E6	PQJS7L33Z	Connector Socket, 7P (JA9)	1
POWER SUPPLY PARTS			
PCB4	PQWP461610M1	Power P.C.Board Ass'y (NLA) (with/C401-404,ZNR401, L401, E403, E404, E406)	1
(CAPACITORS)			
C401,404	ECQU1A473MH	0.047	2
C402,403	ECKDKC222KB	0.0022	2
(VARISTOR)			
ZNR401	ERZC14DK431U	Varistor	1
(COIL)			
L401	PQLE61	Coil	1
(SWITCH)			
SW1	EST15704V	Switch, Power	1
(TRANSFORMERS)			
T1	PQLT5M9M1A	Power Transformer	1
T2	PQLT1M9M1A	Bell Transformer	1

Ref. No.	Part No.	Part Name & Description	Pcs
(OTHERS)			
E400	PQWAT616M	AC Power Cord Assembly	1
E401	PQUV36Y	Power Box Cover	1
E402	PQUV37Y	Power Box	1
E403	PQJS7L6Z	Connector Socket, 7P (J10)	1
E404	PQJP7C1Z	Connector Plug, 7P (BATT JACK)	1
E405	PQMD4012Z	Bracket, Power Box	1
E406	XBA2F15NU2	Fuse (F400)	1
E407	PQQT4181Z	Label	1
LED BOARD PARTS			
PCB5	PQWP5T61610M	LED P.C.Board Ass'y (NLA)	1
(DIODES)			
D800	LN220RPH	LED	1
D801	LN420YPH	LED	1
D802	LN320GPH	LED	1
(OTHERS)			
E800	PQJS4L32Z	Connector Socket, 4P (J6)	1
E801	PQHR402Z	Spacer, LED	3
JACK BOARD PARTS			
PCB6	PQWP661610M1	Jack P.C.Board Ass'y (NLA)	1
(COILS)			
L501,502	PQLQZY333J	Choke Coil	2
L503,505	PQLQZL2R2K	Choke Coil	2
L504	PQLQZL1R0K	Choke Coil	1
(TRANSFORMERS)			
T501,502	PQLT2D6A	Transformer	1
(CAPACITOR)			
C501	ECFD1E473MD	0.047	1
(OTHERS)			
E501	PQJS4L17Y	Connector Socket, 4P (J7)	1
E502	PQJJ1E1Y	Jack, Paging	1
E503	SJJK8	Jack, EXT. Music	1
SMDR BOARD PARTS			
PCB7	PQWP761610M1	SMDR P.C.Board Ass'y (NLA)	1
(ICs)			
IC600	PQVIHD75189P	IC	1
IC601	PQVIHD75188P	IC	1
IC602	PQVIBU3140	IC	1
IC603,604,605	PQVINJM4558D	IC	3
(TRANSISTORS)			
Q600	DTA143XA	Transistor (Si)	1
Q601,602,603	DTC124EA	Transistor (Si)	3
Q604	2SC2878	Transistor (Si)	1
Q605	2SC2021	Transistor (Si)	1

Pcs	Ref. No.	Part Name & Description	Pcs
(DIODES)			
D600,601	1SS131	Diode (Si)	2
(COILS)			
L600,603	PQLQZM1R5M	Choke Coil	2
L601,602,604	PQLQZM2R2M	Choke Coil	3
(CAPACITORS)			
C600-605,614	ECKD1H102KB	0.001	6
C603,606,607	ECKD1H223MD	0.022	3
C608	ECQM1H332JV	0.0033	1
C609,611,626	ECQV1H104JZ	0.1	3
C610	ECQM1H682JV	0.0068	1
C612	ECQV1H473JZ	0.047	1
C613	ECQV1H683JZ	0.068	1
C615	ECQM1H222JV	0.0022	1
C616	ECQV1H124JZ	0.12	1
C617,621	ECQM1H103JV	0.01	2
C618	ECEA1HU330	33	1
C619,620	ECEA1HU4R7	4.7	2
C622,623	ECEA1HU010	1	2
C630	ECEA1HU100	10	1
C640	ECQV1H104JZ	0.1	1
(RESISTORS)			
R600	ERD25TJ561	560	1
R601	ERD16TJ224	220k	1
R602,611	ERD16TJ273	27k	2
R603	ERD16TJ124	120k	1
R604	ERD16TJ393	39k	1
R605,606,607,621,623	ERD16TJ103	10k	5
R608,609,610	ERD16TJ104	100K	3
R612,622	ERD16TJ223	22k	2
R613	ERD16TJ102	1k	1
R614	ERD16TJ563	56k	1
R615,616	ERD16TJ123	12k	2
R617	ERD16TJ222	2.2k	1
R618	ERD16TJ474	470k	1
R619,640	ERD16TJ472	4.7k	2
R620	ERD16TJ334	330k	1
R630,631,632	ERD16TJ822	8.2k	3
R633	ERD16TJ683	68k	1
(OTHERS)			
E301	PQJP26D69Z	Connector Plug, 26P (CN4)	1
E302	PQJS25P3Z	EIA Connector (CN16)	1